LEARNING ART PRINCIPLES THROUGH PROBLEM SOLVING IN A HOME ECONOMICS I CLASS

by

SARAH ANN SHIPMAN

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Approved by:
Bernadine H. Peterson
Major Professor

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CHAPTER I

INTRODUCTION TO THE STUDY

The importance of developing competence in applying art principles to everyday living has been recognized by home economics groups. In a statement of philosophy and objectives of the American Home Economics Association, Home Economics: New Directions, it was stated:

> Home economics synthesizes knowledge drawn from its own research, from the physical, biological, and social sciences and the arts and applies this knowledge to improving the lives of families and individuals.[1]

One of the eight aspects of family living was identified as "Art as an integral part of everyday life."

Art principles permeate almost every area of home and family living. Art education specifically related to home economics is designed by teachers to develop understanding of art principles and beauty, and to relate these learnings to the areas of living.

Illustrative of generalizations developed at curriculum workshops during the past two years, and indicative of the universal nature of art in all areas of living are the

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[1] Committee on Philosophy and Objectives of Home Economics, Home Economics: New Directions, pp. 4-5.

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Illustrative of generalizations developed at curriculum workshops during the past two years, and indicative of the universal nature of art in all areas of living are the following statements developed by workshop participants. The clothing and textile participants stated that "clothing may be a means through which the components of art (line, mass, space, value, color, texture) are illustrated, observed, perceived and experienced."[1]

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[1] Committee on Philosophy and Objectives of Home Economics, _Home Economics: New Directions_, pp. 4-5.

Representative of generalizations developed in the workshop on housing, interior design, furnishings, and equipment were: (1) "Rest is a physical and psychological need of the family for which provisions can be supplied through choice of dwelling and its location, interior design, and furnishing"; and (2) "Rational decisions when acquiring a house, furnishings, and equipment, contribute to the satisfaction of a family's needs and wants with available resources."[2]

The food and nutrition workshop participants stated that "the aesthetic values of individuals can be expressed and satisfied through food preparation and service."[3]

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[1] U. S. Office of Education, Home Economics Education Branch, "Some Representative Generalizations Taken from Reports of Curriculum Workshops, Sponsored by U. S. Office of Education," p. 1. (Mimeographed.)

[2] Ibid., pp. 2-3.

[3] Ibid., p. 5.

There has been a great change in the general body of knowledge since the drama of an earth satellite and the swing in education toward science. Art and science are not discordant. In these days of swift living and of pressures with which individuals are confronted constantly, the appreciation of beauty in art, poetry, nature, and in the many aspects of daily living helps to build enthusiasm, psychological energy, and mental health.

Home economics teachers generally agree that the need for pupils to recognize beauty in everyday living is important. Pupils need not only recognize beauty, but to see beauty in familiar things and to learn how and where to put art principles to use. Too often, however, informational units of study related to only one area of home economics subject matter have been presented rather than those incorporating a problem-solving approach to develop concepts and generalizations that the pupil may use in many areas at the present time and in the future.

Riley emphasized: "Any principle, when understood, can serve as a guide in any situation, even in an unfamiliar one."[1] Frequently too much time is spent in doing and not enough time in thinking. Many people glide along doing whatever seems expedient at the moment, rather than making decisions based upon valid principles. Riley stated: "We must lay even more stress on principles, remembering as we do so that principles must be understood, not just memorized, in order to be useful."[1]

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[1] Velma M. Riley, "Art--A Force in Home Economics," Journal of Home Economics, 52:813, December, 1960.

Teachers have agreed that thinking is important in the teaching-learning process, but not all teachers have promoted the highest form of thinking. Many educators feel that our schools in general are not doing enough in teaching pupils the skills involved in the solution of problems. Noll wrote:

> Our teaching at present is for knowledge of facts and principles, not for methods of thinking. Our curriculum, our textbooks, our examinations, the entire teaching organization and purposes, are in terms of the accumulation of factual knowledge. Attainment of other objectives will result through placing the emphasis on learning to think rather than learning to recite.[2]

Pupils frequently learn facts and skills but may have little real understanding of their application in daily living. The importance of the pupil being able to apply what he has learned in many areas to present time and to solving problems in the future must not be overlooked. Through research it is possible to point to evidence that problem-centered units, rather than those that are traditionally subject-centered, tend to develop skills of critical thinking and decision making.

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[1] Ibid.

[2] V. H. Noll, "Teaching the Habit of Scientific Thinking," Teachers College Record, 35:202, 1933.

All these situations indicated possible opportunities for home economics teachers to prepare the individual to identify and solve problems and to relate art principles learned in a variety of subject-matter situations to many areas of living.

I. STATEMENT OF THE PROBLEM

In this study the problem-solving approach was utilized in developing, teaching, and evaluating a unit for a Home Economics I class.

The purposes of this study were (1) to develop a unit based on art principles using the problem-solving approach; and (2) to determine the learning that occurred as a result of teaching this unit to a group of Home Economics I pupils.

II. THE SITUATION

The experimental group in this study included thirty-two girls enrolled in two Shawnee Heights High School Home Economics I classes during the fall of 1964. The group was composed of two twelfth, four eleventh, two tenth, and twenty-four ninth graders.

Age of the pupils at the time the unit was taught ranged from thirteen to seventeen years. Median age of pupils was fourteen years.

The pupils' art experiences in school were quite varied. Thirteen of the pupils had had some art experience in grade school. Three of the pupils had been enrolled in a required twelve-week course in fine arts in the ninth grade. At the time of the experiment six of the pupils were enrolled in Art I and two pupils were enrolled in Art II.

The pupils' home economics experiences were varied. One of the elementary schools in the high school district offered home economics and fifteen of the pupils had previously been enrolled in home economics in this elementary school.

Each of the pupils was enrolled in an ungraded English program in which pupils were placed in relatively homogeneous groups according to achievement test, the pupils' record of achievement, and by teacher evaluation. Each of the pupils was placed in one of five phases according to achievement. Phase one was the lowest and phase five the highest. The pupils in this study were placed as follows: one in phase one, two in phase two, eighteen in phase three, nine in phase four, and two in phase five.

The Differential Aptitude Test[1] had been administered to all pupils when they were in the ninth grade. Percentile scores on abstract reasoning, space relations and scholastic aptitude (verbal reasoning and numerical ability combined) were considered pertinent to this study. Scores on abstract reasoning ranged from 5 to 99 percentile; scores on space relations ranged from 10 to 97 percentile; scores on scholastic aptitude ranged from 10 to 99 percentile.

Detailed data for each pupil in the experimental group are presented in Appendix A.

The school in this study was Shawnee Heights Rural High School which opened in the fall of 1962. Early in 1960 Highland Park High School was annexed to the city of Topeka, leaving those pupils in the rural area of the district,

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[1] George K. Bennett, Harold G. Seashore, and Alexander G. Wesman, Differential Aptitude Test.

Rural High School District No. 10, without a high school to attend. This district consolidated with Berryton Rural High School district to form a new district to be known as Rural High School District No. 10, Shawnee County, State of Kansas.

During the 1964-1965 school year there were 374 pupils enrolled in grades nine through twelve--one hundred in ninth grade, ninety-six in tenth grade, ninety-eight in eleventh grade, and eighty in twelfth grade.

The high school faculty was composed of twenty-nine teachers. This comprehensive high school offered seventy-six units of study. Of the forty-six credits required for graduation from Shawnee Heights High School eight credits were in language arts, six credits in social science, four credits in mathematics, and two in science.

In general, the school was administered in an orderly, efficient, and progressive manner. The relatively new school plant was well cared for. The pupils' discipline and interest appeared to be "above average," and teacher morale and professional standards appeared to be high.

The high school which served as a laboratory for the experimental unit was located six miles east of Topeka, Kansas. The community surrounding the high school included three small towns. Each of these towns had an elementary school.

II. PROCEDURE

As a basis for the development of this unit based on art principles and emphasizing teaching for improved problem-solving abilities, a review was made of the body of literature in the following fields: learning through problem-solving and art as a part of the home economics program.

A study was made of the twelve competences Peterson developed as ultimate objectives for the total secondary home economics program.[1] Peterson explained: "These were based on abilities, interests, and needs of adolescents; needs of young homemakers; skills involved in the problem-solving process; and current philosophy of home economics in the secondary school."[2]

Two of the competences developed by Peterson, "Applying critical thinking skills to problems of personal and family living," and "Learning to appreciate beauty and its contributions to daily living," were developed into ultimate objectives for the unit in this study.[1] Behaviors were identified that would lead to development of, appreciation for, and ability to use art principles in daily living. These behaviors were structured into problem situations and a unit was developed around these problem situations for a Home Economics I class.

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[1] Bernadine M. Peterson, "Experimental Use of the Problem Solving Method in Teaching a Beginning Home Economics Class," unpublished Doctor's dissertation, pp. 62-63.

[2] *Ibid*., p. 5.

Cumulative records for individual pupils and observations of behavior made it possible for the investigator to structure the unit in this study around needs and problems of the individuals in the group.

Generalizations to be recognized by pupils and suggested pupil learning experiences were identified for problems in the unit. Illustrative desired behaviors and situations for evaluation were recognized for each phase of the unit. Resources for pupils and teacher were listed and used in teaching the unit.

Two pencil-and-paper tests indicated the nature and amount of learning that occurred in subject matter knowledge, understanding, application, and critical thinking ability.

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[1] Ibid., pp. 53-54.

These included a final unit test developed by the investigator and titled, "Beauty As It Affects Individuals and Families" and the Watson-Glaser Critical Thinking Appraisal, Form Ym.[1]

Other means of evaluation included the investigator's analysis of daily work completed by pupils during the teaching of the unit, observation of pupils in the learning situation, and pupil evaluations of specified aspects of the unit. The investigator in this study was the teacher of the unit.

III. DEFINITIONS OF TERMS USED IN THIS STUDY

Terms are defined for use in this study.

Appreciation. Appreciation is the recognition of the worth of something, valuing it highly, and appraising or estimating its worth.

Concept. A concept is a mental picture one has of an idea, an object, or a procedure which enables him to organize his knowledge and adjust his behavior to a variety of situations.

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[1] Goodwin Watson and E. M. Glaser, Watson-Glaser Critical Thinking Appraisal Form Ym.

Critical thinking. Critical thinking is the process of evaluating carefully all evidence and coming to conclusions as objectively as possible through the consideration of all pertinent factors and the use of logic.

Generalizations.

> Generalizations express underlying truth, have an element of universality, and usually indicate relationships. Generalizations help give meanings to concepts. They are based on objective data, on experience, or on theory accepted by specialists in the field.[1]

Learning experience. A learning experience is any interaction between the pupil and external conditions that pertains to personal development of pupils in relation to learning goals.

Problem-solving approach. The problem-solving approach includes providing learning situations in class that give the pupil opportunity for and guidance toward thinking critically and solving problems effectively.

Pupil. A pupil is a high school girl.

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[1] Berenice Mallory, "Curriculum Developments," A New Look at Home Economics, The Bulletin of the National Association of Secondary School Principals, p. 56.

IV. PLAN FOR THE REMAINDER OF THE THESIS

A survey of literature related to this study with implications for high school home economics teaching-learning situations is included in Chapter II.

Chapter III includes unit objectives, major unit generalizations, the unit plan, and evaluation of learnings from the unit "Beauty As It Affects Individuals and Families."

Chapter IV includes a summary of the study and recommendations. Appendices contain teaching materials and evaluation instruments developed for and/or used in this study and data concerning pupils in the experimental group.

CHAPTER II

REVIEW OF LITERATURE

Much has been written in regard to the process of problem-solving itself and the importance of helping pupils develop skills of problem solving. Educators have written in regard to the importance of teaching basic principles of art in the total home economics program, goals or objectives for teaching art in home economics, and how to teach these art principles so they will function in all specializations within the field of home economics. A summary of literature in the above areas, as related to this study, will be given here.

I. LEARNING THROUGH PROBLEM SOLVING

Life is a continuous process of adjustment to a constantly changing environment. Teachers of home economics, a subject that is designed to assist in preparing pupils directly for effective personal and family life, have a particular responsibility to teach so that pupils will be able, as they meet new situations and encounter new ideas, to apply specific powers of reasoning, to analyze, and to think critically. Lawson emphasized that because the past is not a complete guide to the future, the task of educating youth for adaptability and versability has beome increasingly important.[1] Learning situations developed with skill in thinking as a goal may help pupils gain thinking critically and solving problems of daily living effectively.

Importance of problem solving. The importance of education in helping the individual learn to identify and solve the kinds of problems he will face in his daily living has been recognized by educators. Boraas stated: "The ability to exercise good judgment in regard to affairs of practical life is an important element of successful living and should be emphasized much more than it has been in our schools."[2]

Symonds concluded, "There is no substitute for the actual wrestling with real problems in the development of thinking."[3]

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[1] Dorothy S. Lawson, "Education for Improved Family Living," *A New Look at Home Economics*, The Bulletin of the National Association of Secondary Principals, p. 15.

[2] Julius Boraas, *Teaching to Think*, p. 13.

[3] Percival M. Symonds, *Education and the Psychology of Thinking*, p. 66.

In a democracy where each citizen is expected to make decisions daily, it is important that every person be given opportunity to learn to think. Mayhew emphasized this belief.

> American democracy places the greatest confidence in the individual human being and his ability to solve those problems which face him collectively or as a person and implies that each person must know of and be able to use the techniques and the rationale of problem solving. By this I do not mean any pat formulae which can be memorized and applied. Rather is meant an entire approach to life which is based upon confidence in one's self and which seeks to meet situations, whatever their magnitude, in a calm, rational way rather than by emotions or reliance upon some external authority. . . . Problem solving is the method by which students should approach their studies in order to extract the greatest value from them. Schools could render their most important contribution to society if they would concentrate on developing skill in problem solving on the part of their students.[1]

Problem solving is not the only way to teach, but because of evidence in its favor, much time should be spent in promoting learning through problem solving and judgment. Through research it is possible to point to evidence in favor of problem-centered approach rather than the traditional subject-centered approach. Pupils who have the advantages of instruction which emphasizes the defined aspects of critical thinking will have a "definite superiority in terms of pupil growth and performance over pupils taught by conventional practices" was the belief of Wrightstone.[1]

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[1] Lewis B. Mayhew, "Educational Integration Through Critical Thinking," Michigan Education Journal, 9:74, October 1, 1935.

In a study by Katona two groups that used different approaches to problems were compared. One group used memory, and the other group worked on solving similar problems after they had received explanations. The groups were given retests, and the group with problem-solving experiences showed greater skill in solving problems.[2]

Kight and Michelson reported that problem-centered units have been more effective than subject-centered units in teaching rules of action and factual information and in connecting specific facts with corresponding rules of action.[3]

Fersh *et al.*, wrote:

> Most studies which have compared the problems with other forms of curricular organization claim not only that problem solving is more motivational, but also that it brings improved attitudes and the command of

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[1] J. W. Wrightstone, *Appraisal of Newer Elementary School Practices*, p. 194.

[2] George Katona, *Organizing and Memorizing*, pp. 82-85.

[3] Hanford S. Kight and John M. Michelson, "Problem vs. Subject," *The Clearing House*, 24:3-7, 1949.

more basic skills.[1]

In a study by Peterson it was shown that courses of study which are developmental, rather than merely informational, serve as the best assurance that pupils will accept problems and that they will actually engage in problem-solving activities.[2]

Steps in problem solving. Many educators have written concerning the process of problem solving. Burton stated that problem solving is the process of critical reflective thinking by which the individual finds his way out of the perplexing situations.[3]

Peterson described problem solving.

> A problem solving activity is the reasonably well specified behavior which occurs when an individual, engaged in active commerce with the environment, meets an obstacle and his activity is impeded. One straightforward line of action is no longer apparent; the individual is faced with alternatives, must pause and choose.[4]

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[1] George L. Fersh, R. E. Gross and R. H. Muessig, "The Problems Approach and Social Studies," *National Council for the Social Sciences*. 9:107, April 1955.

[2] Bernadine H. Peterson, "Problem Solving in Home Economics," *Journal of Home Economics*, 55:179, March, 1963.

[3] William H. Burton, Roland B. Kimball, and Richard L. Wing, *Education for Effective Thinking*, p. 21.

[4] Bernadine H. Peterson, "Experimental Use of the Problem Solving Method in Teaching a Beginning Home Economics Class," unpublished Doctor's dissertation, p. 20.

Johnson suggested that "Problem solving begins with the initial orientation and ends with the closing judgment, but between these bounds almost anything can happen, in any sequence."[1]

Peterson summarized the steps in problem solving as follows:

> 1. _The stage of anxiety_. During this stage a sense of need is aroused in the individual. Curiosity is evidenced. A sense of exploration is apparent.
>
> 2. _The stage of definition_. The problem is described or defined to the satisfaction of the individual. Many individuals fail to solve their problems because they are unable to define or identify them. It is highly unlikely that a problem will be solved successfully if it cannot be recognized and defined.
>
> 3. _The stage of research or experimentation_. This is the stage of activity. Information is collected concerning the problem. Some information collected may later prove to be irrelevant, but it is important to gather any information which appears to have likelihood of usefulness in the solution of the problem.
>
> 4. _The stage of hypothesis_. During this stage the individual tries out (mentally or actually) possible solutions to the problem. Several solutions may be suggested for some problems; others may evoke only one. At times no solution will be reached and the process may have to be repeated wholly or partially, so that a solution can be hypothesized.
>
> 5. _The stage of appraisal_. Solutions are evaluated and the "best" solution may be identified. Frequently

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[1] A. M. Johnson, _The Psychology of Thought and Judgment_, p. 202.

> during this stage the entire process is appraised as it relates to this particular problem.[1]

Teaching for problem-solving skills. As stated by Wellington, "The aim of teaching determines the method."[2] Hilgard emphasized that if one believes learning is essentially creative experiencing in which the learner, under guidance, evolves goals, formulates and executes plans, evaluates results, and incorporates accepted learnings into his value and attitude system to act with and upon subsequent experience, then it is necessary for him to believe that in order to learn, or to remember what has been learned, the pupil has to actively and personally become involved with his problem.[3]

The school is concerned with creating problems as well as it is with solving them. As stated by Thorndike, "A major concern of the teacher should be to provide school experiences which will introduce the pupil to a wide range of group living."[1]

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[1] Peterson, *op. cit.*, pp. 21-22.

[2] Burleigh C. Wellington and Jean Wellington, *Teaching for Critical Thinking*, p. 4.

[3] Earnest R. Hilgard, *Theories of Learning*, p. 466.

Hall and Paolucci wrote that if experiences in the home economics classroom were to help the pupils make intelligent choices, the opportunity for making choices would be a part of the daily classroom routine.[2] The home economics teacher may help pupils become aware of some of the many decisions homemakers find it necessary to make daily and at the same time help them to recognize the process used to solve problems related to personal and family living.

It is the belief of some educators that thinking is a natural process and will always occur. Random, aimless, thinking does occur in this manner. However, according to Burton *et al.*, organized systematic thinking has to be learned and acquired through continuous practice in problem solving.[3]

One way to develop critical, organized, systematic thinking is to create an effective learning environment. Rogers said that it is impossible to teach critical thinking directly, and that it is better to work with the pupil so that he becomes personally involved in solving some sort of problem that interests him. Authoritative methods are not conducive to critical thinking and often develop only a knowledge of facts.[1]

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[1] Robert L. Thorndike, "How Children Learn the Principles and Techniques of Problem-Solving," *Learning and Instruction*, Forty-Ninth Yearbook of the National Society for the Study of Education, Part I, p. 194.

[2] Olive A. Hall and Beatrice Paolucci, *Teaching Home Economics*, p. 121.

[3] Burton, Kimball and Wing, *op. cit.*, p. 15.

Brown described aspects of thinking.

> The ability to do problem solving is one aspect of thinking intelligently. All thinking involves at least two aspects: The _content_ of thought and _process_ of thought. The _content_ of thought (the ideas, facts, generalizations) are acceptable when we are sure that they have been arrived at by acceptable standards in the _process_ of thought. The process of thought (the way one thinks) meets acceptable standards when the processes withstand the examination of other minds using the standards of logic and of the methods of science.[2]

Burton _et al_., emphasized that a problem which was not understood by the person, which cannot be attacked, and for which he had no desire for solution, was not a problem for the given individual.[3]

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[1] Carl R. Rogers, _Client-Centered Therapy_, pp. 384-391.

[2] Marjorie Brown, _Home Learning Experiences in the Home Economics Program_, p. 20.

[3] Burton, Kimball, and Wing, _op_. _cit_., p. 21.

One of the teacher's responsibilities to his class is leading the class into problem situations. The awareness of problems may be increased by providing a rich and varied experience background for the pupils. The attitude of teachers toward questioning may contribute toward awareness of problems. Thorndike stated:

> When the school provides an atmosphere which is friendly to questions, one which accepts the questions in a positive way even when they may be embarrassing or momentarily inconvenient, and one which gives encouragement to the asking of questions and the seeking of answers, it encourages the attitude which approaches the world as a place to be explored, investigated, and understood.[1]

After interest has been aroused and anxiety created, there needs to be a clarification of the problem. Burton _et al_., suggested the following procedure: (1) identify and evaluate the key assumptions associated with the problem; (2) establish definitions for the key words used; (3) subdivide a problem into major parts; and (4) redefine the problem.[2]

One of the roles of the teacher is helping the pupil concentrate on the problem. Some helpful ways suggested by Burton _et al._, included: (1) holding individuals for the implications of statements made; (2) manifesting self-criticism and analysis of his own statements; (3) occasionally telling pupils directly but courteously that they are off the point, and that the group will have to return to the problem; and (4) tabling a contribution sometimes with the promise of later discussion when it is applicable.[1]

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[1] Thorndike, _op_. _cit_., p. 211.

[2] Burton, Kimball, and Wing, _op_. _cit_., p. 54.

Wellington stated that after the problem had been felt and defined, pupils may suggest ways of solving the problem. The role of the teacher then might be of helping pupils consolidate approaches to the problem and might suggest other methods to use.[2] The carrying out of research to solve the problem may be done singly or in groups presenting all evidence available to verify the answer:

Thorndike believed the following:

> Education must provide the background of information which affords the basis for problem-solving in each area concerned. . . . Knowledge which is useful for problem-solving is organized knowledge, organized on the basis of the structure of the field and in terms of significant generalizations, organized by the learner and applied by him in a variety of contexts.[3]

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[1] Burton, Kimball, and Wing, _loc_. _cit_.

[2] Wellington, and Wellington, _op_. _cit_., p. 40.

[3] Thorndike, _op_. _cit_., pp. 211-212.

The pupil needs to know how to find the facts which relate to his problem and how to organize these facts after they have been assembled. Skills which the school may develop are: (1) use of library and in locating information within a library; (2) using reference books of all types and using the aids which a book provides for locating specific items; (3) skimming reading materials; (4) careful and critical reading to note detailed facts and get specific meanings; (5) note-taking (6) precise writing; and (7) outlining.[1]

There are many ways to help a pupil gather information in an objective manner. The following suggestions were made by Burton _et al_.: (1) provide within the classroom experiences that are contrasting and contradictory items; (2) keep the problem before the class as the constant point of reference; (3) ask for sources, facts, reasons, backing of any type for all assertions, contributions and conclusions; (4) be sure that all views are heard and critically analyzed; (5) allow time for contemplation, greater insight, and new data to appear; (6) pinpoint the feeling aspect as well as the cognitive; and (7) establish a universe of discourse.[1]

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[1] Thorndike, _op_. _cit_., p. 212.

Educators have said a great deal concerning the general classroom climate in producing an atmosphere conducive to teaching for critical thinking. Rogers believes a teacher's attitude should express a feeling of warmth and sympathy towards pupils so that they feel "non-threatened" and have the desire to solve the problem by themselves, and thus will act in a positive and constructive manner. He felt the role of a teacher should be of keeping communication channels open, not in insisting upon his point of view, looking forward to determining future obstacles and gathering facts and materials so the group can overcome them, talking not more than one fifth of the time summarizing occasionally, and aiding the pupils to set up standards to measure progress.[2]

If the aim is to have pupils think critically to the best of their ability, then class agreement or even a majority vote is not necessary according to Wellington and Wellington.[3]

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[1] Burton, Kimball, and Wing, op. cit., pp. 110-111.

[2] Rogers, Client-Centered Therapy, pp. 397-409.

[3] Wellington and Wellington, op. cit., p. 45.

Some of the difficulties that are involved in this type of classroom technique were pointed out by Burton _et al_. Individuals differ greatly in their abilities to see problems. Groups have a difficult time staying on the problem and often muddled thinking is evident. Some people are dominated by routine, some can feel only that something is wrong, and others deliberately avoid the problem.[1] Rogers suggested that the teacher be aware of the pupil who works when everything has been mapped out for him, as well as the silent, hostile or submissive pupils.[2]

Rogers identified nine guides for teaching critical thinking through problem solving:

> 1. Try to create an acceptive climate, basic respect of teacher for individual.
> 2. Pertinent issues arise out of student's own purposes.
> 3. Some students can't like it.
> 4. Act as resource person, lecture if group wishes.
> 5. Devote initial sessions to planning in terms of goals and projects.
> 6. Be non-directive all the way (exams, syllabus, papers, etc.)
> 7. Teacher's mood sets the tone, he accepts all. Relies on students' need to obtain their goals as the motivation for learning. Must remain neutral--non-personal, but understanding.
> 8. Discussions lead to many goals. Group tolerates

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[1] Burton, Kimball, and Wing, _op_. _cit_., p. 52.

[2] Rogers, _op_. _cit_., pp. 421-427.

not fixed conclusion. Further thinking is necessary.

9. Self-evaluation important, sets up own criteria and standards.

a) students help make up questions and evaluate the answers.

b) open class discussion of each group.

c) student writes a self evaluation and grade. External evaluation impedes personal growth.[1]

Rogers also suggested the following classroom devices: circular seating arrangements with the teacher sitting in a different chair each time, small subgroups (buzz groups, a specific aspect and limited time to come up with an answer), role playing, case methods, burden of discussion and evaluation is on pupil (realistic rather than abstract terms), brainstorming (nine to twelve people and nine to twelve minutes for solutions to problems), panel, resource speaker, films, individual work problems, and by teacher conference.[2]

Wellington and Wellington suggested six main techniques in teaching for problem solving. They were discussion, multisensory, laboratory, communications, small group, and lecture. Discussion technique is desirable in the early stages of problem solving. These writers suggested there be more discussion among pupils and less between pupil and teacher.[1]

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[1] Ibid., pp. 401-402.

[2] Rogers, op. cit., pp. 401-402.

The multisensory technique was suggested by Wellington and Wellington and defined as "the use by the teacher of any auditory or visual device, or of any other medium appealing to other senses which help students to grasp a fact, an idea, a concept, or an attitude."[2] The senses of touch, smell, taste, sight, and hearing may be used advantageously in the home economics classroom. Some of the important multisensory aids the teacher may use are: film, television, slides, tapes, records, chalkboard, magazines, bulletin boards, and field trips. In research multisensory aids may be used to provide information needed to solve defined problems. This may be used to arouse interest and enthusiasm for a new topic.

Problem solving may involve experimentation, research, testing, and analyzing. The laboratory technique is commonly used. The teacher's role in the laboratory is to guide and assist. To be an effective learning experience the laboratory needs to be organized, and the pupils need to understand how to use materials.

The communication technique permits the teacher to give guidance to pupils directly in reading, writing, and speaking. In the problem-solving process the pupils need to read carefully, to write summaries and reports accurately and concisely, and to gain skill in stating significant ideas clearly and briefly.

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[1] Wellington and Wellington, _op_. _cit_., pp. 121-239.

[2] _Ibid_., p. 141.

The small group technique may help pupils feel success, give them a sense of belonging, and encourage them to think together about important matters. The teacher may act as a resource person, interrupting only to correct obvious errors in pupil-presented information. Spafford concluded that when the small group technique was used, teacher guidance needed to be available when and as it was needed.[1] Pupils differ as to the kind and amount of guidance needed. It is important for the teacher to lend guidance at the right moment, to ask the question which brings to light an unrecognized problem, to give the suggestion which clears up the difficulty, and suggest sources of help.

The tremendous need for the development of the ability to think critically and techniques that may be used by teachers when seeking to develop thinking skill in pupils have been emphasized in this review. The importance of problem solving, the process of problem solving itself, and means of teaching for problem solving have been reviewed.

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[1] Ivol Spafford, Fundamentals in Teaching Home Economics, p. 287.

II. ART AS A PART OF THE HOME ECONOMICS PROGRAM

Home economists generally agree that art is a part of the total home economics program. A number of home economists have indicated the importance of teaching art in home economics. Whittier wrote:

> Art is one of those things which, like air and earth, is everywhere around us, but which we very often neglect to consider. As soon as a person is involved with eating, being clothed, and having shelter (except as they fulfill the basic needs of man), he is becoming involved with Art. One's ability to enjoy life is greatly dependent upon one's capacity to understand and participate in things which make up life's interests. By developing these capacities one's life would be enriched, for we can only fully enjoy and appreciate that which we understand.[1]

True _et al._, considering home economics as a broad field concerned with the family as a unit of human beings, wrote:

> The arts and humans are an integral study. One is contained in the other. The arts interpret, clarify, and enhance life experiences. Through the arts, man understands himself better, his ancestors better, as well as his present and foreseeable future. He finds deep satisfaction and pleasure in artistic self-expression because of these facts, the visual arts have several roles in home economics, some of which

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[1] Joan Graham Whittier, "Art in Home Economics," _Illinois Teacher of Home Economics_, 6:433, December, 1960.

have not been sufficiently developed.[1]

These authors quoted from the report of a conference on Art in Home Economics.[2]

> 1. Art has a rightful place in home economics because home economics (or family living, if you will) is partly art. It is a vital part. . .
> 2. Art is "something," a language not of words, though we try with words to describe it. To me, art in home economics is the deep creative well that pumps joy and zest to enrich life, though the pumping is not always easy.
> 3. Art is in home economics to make it possible for the student to create (to bring into being from within himself) this "something," in terms of feeling, a product, a response.
> 4. Our art aim in home economics is not to develop creative expression in the fine arts but rather to develop a creativity toward art in living.[3]

Recommendations written by the National Association of Secondary-School Principals' Curriculum Planning and Development Committee emphasized the need for ability to apply principles of art and the part that art plays in all areas of home economics in the following:

> Home economics centers on helping students to develop abilities and attitudes needed in home and family life. These abilities involve understandings basic to making the decisions that relate to the

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[1] Virginia True, Gertrude Nygren, and Dorothy C. O'Donnell, "Art in Home Economics," Journal of Home Economics, 54:825, December, 1962.

[2] Ibid., p. 829.

[3] True, Nygren, and O'Donnell, op. cit., p. 829.

> development of individuals and the use of material resources to achieve family goals. Such understandings require ability to apply principles from art as well as from social, physical, and biological sciences, and from home economics research. Knowledge from these various fields is integrated as students learn to solve problems of individuals, families, and communities.
>
> Art is an element that runs through each of the areas of instruction in home economics: social and family relationships, child development, personal and family finance, consumer buying and use, nutrition and family meals, family health and home safety, housing, home management, textiles and clothing, grooming, and many others.[1]

Teaching art as a part of the whole home economics program and not just as an isolated art unit in one area of family living can be an effective and useful means for helping pupils see broad applications for art principles. Whittier stated this conviction when she wrote:

> Because the curriculum in Home Economics has become more integrated, Art can be assigned a more diversified role within the whole Home Economics program. No longer should it be a separate entity, but rather it should permeate a large part of the program and should be associated in a general way with a great variety of the student's experiences.[2]

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[1] National Association of Secondary-School Principals' Curriculum Planning and Development Committee, "The Arts in the Comprehensive Secondary School," *The Secondary School Principal and His School*, The Bulletin of the National Association of Secondary School Principals, p. 9.

[2] Joan Graham Whittier, "Art in Home Economics," *Illinois Teacher of Home Economics*, 6:434, December, 1961.

Obst stressed that art should be made an integral part of all home economics. She pointed out that "where the art training is accomplished matters less than how it is done."[1]

Goals for art education in home economics. Many educators have identified goals for art education in home economics. Some of these goals for pupils are: to develop awareness and appreciation of art; to gain skill in selecting and making wise use in everyday life of articles that show beauty in design and color; and the realization that a knowledge of and an ability to apply the principles of art in daily living help one to become more sensitive to beauty, to enjoy it more, and to live a more satisfying life.

Riley believed that:

> Observation, the act of taking notice and of regarding with attention, is the first step in developing awareness. As you observe, you begin to understand and gain insight. This keen sense of awareness is a faculty which can be cultivated and developed, and we should be developing more of it in our student. . . . To be aware is to be constantly "on the grow." Awareness or sensitivity

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[1] Frances M. Obst, "New Developments and a Look Ahead The Importance of Art in Home Economics: A Philosophy," *Journal of Home Economics*, 52:564, September, 1959.

> to people, things, and relationships is basic appreciation. We should learn to appreciate beauty of all kinds wherever we see it, no matter how humble its origin. . . . The ability to appreciate is one of the greatest joys of life. He who has a wide range of appreciation is able to enjoy life to the fullest. Developing in students the art of appreciating is our most important task.[1]

Obst recognized development of beauty and of the ability to see beauty in familiar things as two of the goals of art in home economics. She stated:

> The importance of having these experiences now, the enjoyment of and recognition of many kinds of beauty, is the basic philosophy of art teaching. . . . In these days of swift living and of pressures with which we are presently bombarded, the appreciation of beauty in art, music, poetry, and nature helps to build enthusiasm, psychological energy, and mental health. The recreative powers of the art build human resources.[2]

True reiterated this belief.

> Thus, in a very real sense we do not teach "art," but we do and can provide the climate for its active aliveness and development. It is this artistic part of the human being that combats sterility, monotony, automation, and the over-organization in which man traps himself in this wonderfully mechanized age. It is this part of himself that maintains his sanity and health and retains his humanness.[3]

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[1] Velma Riley, "Art-A Force in Home Economics," Journal of Home Economics, 52:814, December, 1960.

[2] Obst, op. cit., p.563.

[3] True, Nygren, and O'Donnell, op. cit., p. 825.

Satisfactions and enjoyments are often included under the more inclusive heading of appreciations. According to Russell and Gwynne, appreciations are of two types--emotional and intellectual. They wrote:

> The emotional appreciation of art is based upon the pleasure and enjoyment derived from beautiful shapes, colors, designs, and arrangements. The intellectual appreciation of art results from some understanding of the basic use of art principles, from satisfaction in being able to recognize materials possessing art quality, and from ability to make beautiful arrangements.[1]

Smith believed:

> To appreciate is to recognize the worth of something, to value it highly, to appraise or estimate its worth. Appreciation is not the same thing as enjoyment. To enjoy is to like something, to feel the pleasure of it, to respond to it positively. . . . We can say then, that appreciation has logical dimensions, whereas enjoyment is a psychological matter and has no logical aspects at all.[2]

Smith also indicated that if teachers want pupils to be disciplined in the processes of making value judgments, to be skilled in the handling of value questions, to be alert to the pitfalls of reasoning and prudent in making decisions and taking actions, and to be perceptive of the deeper aspects of art, then a renewed emphasis upon the logical aspects of teaching in art as well as in other subjects must be made.[1]

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[1] Mable Russell and Elsie Wilson Gwynne, Art Education for Daily Living, p. 21.

[2] Othanel B. Smith, "The Logic of Teaching in the Arts," Teachers College Record, 63:179-180, December, 1961.

Pupils gaining skill in selecting and making wise use in everyday life of articles that show beauty in design and color may contribute to the improvement of their environment.

Obst believed the following:

> Art teaching should have as a major objective the improvement of environment. . . . Good taste and appreciation and a desire to improve surroundings all go together. It is another thing, however, to develop in pupils the ability to realize these improvements. . . . There are people whose taste is excellent who are unable to give the reasons for their judgment, but the person who does not have instinctive good taste can learn through conscious application of principles of beauty until his judgment has become instinctive. We develop ability to do these things which will improve the environment.[2]

Whittier proposed development of discrimination and good judgment as an objective.[3] Riley stressed that we must strive to raise the standards of taste in this country. She wrote, "How can we expect to rid our markets of hopelessly poor design without teaching our students to want and demand better design quality?"[1] True and others beleved:

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[1] _Ibid_., p. 183.

[2] Obst, _op_. _cit_., p. 564.

[3] Whittier, _op_ _cit_., p. 444.

> Another role of art in home economics is the major part the arts play in man's environment, his house, his community. Considered broadly, this included not only his house but also his dress, for this is a part of his man-made environment. The space in which he lives and that encloses him in his home, and in his daily pursuits, can be either a prison of ugliness or a release in beauty and esthetic freedom. The artistic suitability of his clothes is similarly affective. The interaction of space, light, form, color, texture, and the human being is incessant, and is either positive or negative according to artistic meaning or its lack.[2]

An important goal in the teaching of art in home economics is for pupils to realize that knowledge of and an ability to apply basic principles of art in daily living may help one to become more sensitive to beauty, to enjoy it more, and to live a more satisfying life. Whittier proposed the development of an understanding of art principles and ability to make use of them as a basic objective for learning in home economics. He indicated that "the principles should not be considered as ends in themselves, but rather as a means to achievement in creative and problem-solving activities, and as vocabulary for descriptive analysis."[1]

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[1] Riley, _op. cit._, pp. 814-815.

[2] True, Nygren, and O'Donnell, _op. cit._, p. 826.

Knowledge of appropriate uses for principles of art is a prerequisite for any successful creative work in connection with the home, in regard to problems in costume design or in any other phase of art. Russell believed, "The 'knowing' precedes' the successful 'doing' of the art."[2] He wrote:

> The average individual needs clear and definite art standards or principles which will guide him in making satisfactory choices and combinations. As he has more experience and develops some degree of judgment, he begins to make application of the principle unconsciously.[3]

Teaching art principles in home economics. Riley indicated that there must be more stress placed on principles if there is to be an improvement in the teaching of art in home economics. Principles must be understood, not just memorized, in order to be useful. "Any principle, when really understood, can serve as a guide in any situation, even in an unfamiliar one. . . . Often we become so involved in technique that we neglect the basic theory of the problem," Riley wrote.[1]

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[1] Whittier, loc. cit.

[2] Russell and Gwynne, op. cit., p. 5.

[3] Ibid., p. 16.

When principles are presented for their own sake, they may be dull and meaningless; when presented as a means of achieving success in solving worth-while problems of selection, combination, and creation, they may become vital and purposeful. The generalizations developed by pupils as they solve an art problem may be used later by these same pupils in solving future problems.

Obst wrote:

> A study of essentials underlying all art problems, the system for guiding a person who is prepared to make suitable designs or wise purchases, is a consideration behind what we teach. Selections which have beauty are measured according to art principles. Articles are judged by good workmanship, materials, and processes and by related information in science and economics bearing upon the problem.[2]

As pupils discover for themselves general truths or principles through problem solving, they develop a basis for solving similar problems at a later time. The discovery of general truths or principles is an essential step in developing the ability to solve problems. The principles are a basis for making suitable decisions and are not in themselves the desired end. To develop worthwhile judgmental ability it is necessary for a pupil to have opportunity to make decisions in as many similar situations as possible. Whittier and Obst realized the importance of meaningful learning experiences for pupils. Whittier pointed out that every human being must do his own learning and the teacher, at best, can contrive an environment within which the pupil will encounter experiences, which he will "take to heart" according to his own background and experiences.[1] Obst insisted that "we want an 'experience' emphasis rather than an 'object' emphasis."[2]

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[1] Riley, op. cit., p. 813.

[2] Obst, op. cit., pp. 565-566.

Whittier stated:

> The procedures used to teach Art must be those which provide exploration and discovery of the student's own environment, and the variety of materials it contains. The procedure basic to the teaching of all Art through Home Economics is to provide conditions which will stimulate creativity and permit it to develop. This means two things: (1) Setting up an atmosphere of permissiveness; and (2) Giving the student intimate exposure to the materials of One's Art. . . . Permissiveness should not be mistaken for undisciplined"self-expressions" or "creative plan." Before one can

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[1] Whittier, *op. cit.*, p. 434.

[2] Obst, *op. cit.*, p. 563.

> be creative one must have done the hard work of learning fundamentals.[1]

Through problem solving pupils learn the importance of understanding basic fundamentals and the need to analyze their reasons for liking or disliking a thing. The authority of judgment comes from the experiences of pupils with actual materials. As Whittier believed:

> One learns by doing, not by being told, and even if one is told what the experts say, and even if the experts are right, one still cannot understand and appreciate what they say until one has learned from her own experience what they say is true. In no other way can a student make the knowledge her own.[2]

Qualities of the problems chosen for the classroom are of utmost importance. Obst, Russell and Gwynne and Whittier indicated qualities of problems they felt necessary. Obst believed:

> Choosing problems which give values to a class is of utmost importance. . . . It (problems) should serve the interests and needs of every income group; it (they) should teach principles which are universal. Art should be made to function in all specializations within the field of home economics.[3]

Russell and Gwynne felt that "an art training which is presented through home problems brings art very near to everyone and makes it a part of everyday living."[1]

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[1] Whittier, *op. cit.*, p. 434.

[2] *Ibid.*, p. 436.

[3] Obst, *op. cit.*, p. 566.

Whittier believed:

> Problems designed to furnish many solutions to the same question rather than one solution certainly would have merit, for they would provide opportunities for students to compare and contrast materials, techniques and results, and draw their own conclusions by making their own judgments. It would also suggest that laboratory activities using actual materials and solving real aids, for such aids can be no substitute for direct contact with real materials themselves. Seeing movies, reading texts, and listening to lectures does not give intimate knowledge of such. They can show what has been done, possible methods others have used (and perhaps inhibit the student who might be creative), but they cannot show what the student might create herself.[2]

The teacher who is vitally concerned with making learning experiences in art contribute as much as possible to the lives of her pupils will endeavor to exemplify in her own practices the art she is teaching. A classroom that is inviting, orderly, and consistent with the standards of good design contributes to effective teaching. If basic classwork is sound, learnings in art will be more likely to carry outside the classroom and continue as a life experience.

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[1] Russell and Gwynne, _op_. _cit_., p. 437.

[2] Whittier, _op_. _cit_., p. 437.

CHAPTER III

THE UNIT

The unit developed in this study was based on principles of art and was entitled "Beauty As It Affects Individuals and Families." Various areas of home economics were utilized in teaching the unit. The objectives for the unit, major generalizations, the unit plan, and the evaluation of learnings from the unit will be found in this chapter.

I. OBJECTIVES FOR THE UNIT

Objectives for the unit were written as Tyler recommended, to show behaviors expected of pupils and the area of life in which the behavior is to operate.[1] Objectives were stated as behaviors expected of pupils and were as follows:

1. Evidences awareness of and an ability to use the problem solving process in applying art principles to areas of family living.
2. Becomes aware of and appreciates beauty in life.

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[1] Ralph W. Tyler, Basic Principles of Curriculum and Instruction, p. 30.

3. Desires to choose possessions which are beautiful in color and design although not necessarily expensive.
4. Realizes that knowledge of and ability to apply the principles of art in daily living help one to become more sensitive to beauty, to enjoy it more, and to live a more satisfying life.
5. Appreciates satisfactions derived from using articles of beauty in daily living.
6. Gains skill in selecting and making wise use in everyday life of articles that show beauty in design and color.
7. Develops skill in recognizing significant ideas concerning art principles from appropriate sources and in applying these ideas to daily living.

II. MAJOR GENERALIZATIONS FOR THE UNIT

Major generalizations for the unit were as follows:

1. Individuals have potential for developing awareness of and appreciation for beauty.
2. When one develops awareness of and skill in using principles of art in daily living, one

may enhance his sensitivity to and enjoyment of beauty and his satisfactions in living.

3. Principles of art are interrelated and may be utilized in all areas of living.
4. Through problem-solving learning experiences individuals may develop skill in applying art principles in all areas of living.

III. PLAN FOR UNIT

Complete plans for the unit, "Beauty As It Affects Individuals and Families," follow.

UNIT TITLE: BEAUTY AS IT AFFECTS INDIVIDUALS AND FAMILIES

GRID FOR UNIT

Content Areas	Understanding of Important Facts and Principles	Familiarity with Dependable Sources and Materials	Ability to Apply Principles	Mature Interests and Social Attitudes
Awareness and appreciation for beauty.	Recognizes that there are many beautiful things in the world and that one's awareness of and appreciation for these develop through observing, examining, manipulating, and becoming involved with them.	Becomes familiar with sources of information that help one develop an awareness of and an appreciation for beauty.	Shows growth in awareness of and appreciation for beauty through experiences.	Derives and appreciates satisfactions derived from using articles of beauty in daily living. Accepts individual responsibility for maintaining natural beauty and responds to efforts for civic beautification. Develops desire for attractive and satisfying surroundings.

GRID FOR UNIT (continued)

Relationship of art principles to beauty.	Understands the meaning of the basic elements of design and the principles of art and realizes they may be used as a basis for judging beauty.	Becomes familiar with sources of information regarding basic elements of design and the principles of art.	Gains skill in establishing and using criteria for judging beauty.	Recognizes that a knowledge of and ability to apply principles of art in daily living help one to become more sensitive to beauty, to enjoy it more, and to live a more satisfying life.
Creation of pleasing combinations in all phases of living.	Develops a general understanding of how to combine objects into pleasing combinations.	Becomes familiar with sources of information regarding selecting and making use in everyday life of articles which are pleasing in design and color.	Gains skill in creating pleasing combinations in several areas of living.	Shows discriminating perception of design in creating pleasing combinations in all phases of living.
			Uses problem solving process in applying art principles to areas of daily living.	Shows broad interest in art and a continuing desire to apply it to daily living.

BEAUTY AS IT AFFECTS INDIVIDUALS AND FAMILIES

MAJOR PROBLEMS

I. How can one become aware of and develop an appreciation for beauty in everyday surroundings?

II. How can a problem concerning principles of art in daily living be solved?

III. How does one begin to develop standards for judging beauty?

IV. How can proportion be used effectively in making surroundings beautiful?

V. How can one use principles of balance in daily living?

VI. How can one use rhythm to achieve beauty in surroundings?

VII. How can one use emphasis effectively in daily living?

VIII. How can one select and use color effectively in daily living?

IX. How can one use texture effectively in adding beauty to daily living?

X. How can one use line, shape, and form effectively to create a pleasing design?

MAJOR PROBLEMS (continued)

XI. How are art principles related to choices involved in preparation for making a garment?

THE UNIT

Unit Title: "Beauty As it Affects Individuals and Families"

Major Problem I: How can one become aware of and develop an appreciation for beauty in surroundings of everyday living?

Concept: Awareness and Appreciation of Beauty

Illustrative Desired Behaviors	Generalizations to be Recognized	Suggested Learning Experiences	Illustrative Situations for Evaluation
Begins to see and enjoy beauty wherever found.	There are many beautiful things in the world about us.	Observe film from suggested list (Appendix B). Some of the ways one can satisfy his natural desire to see beauty are discovered by thinking together and discussing:	Evidences of: 1) interest shown by verbal response and facial expression; 2) curiosity about forms of beauty; 3) quality of contributions to class discussion; 4) awareness of beauty.
Shows interest in finding beauty in simple things in daily life.	Awareness of and appreciation for beauty grow through observation, examination, manipulation and becoming more sensitive to surroundings.	How nature provides for the enjoyment of beauty from the very simple features to the tremenduous bursts of beauty (Examples: the beauty in a leaf and in animal forms).	Evidences of skill in: 1) expressing thoughts; 2) summarizing lesson.
Develops an awareness of aesthetic factors in dress, furnishings, city design, automobiles, architecture, and the like.	Individuals may overcome some of the unawareness of and insensitiveness to beauty around them by developing	How many man-made products have art quality as well as functional efficiency (Examples:	

MAJOR PROBLEM I (continued)

Shows increasing sensitiveness to sights, tastes, aromas, feelings, and sounds encountered in school and out . Displays a growing appreciation of beauty.	aesthetic sensory perceptions. Enjoyment of beauty in our surroundings can increase satisfactions in daily living.	automobiles). How art can be expressed in your home and community (Examples: rooms that are convenient and inviting and beautiful lakes). Aesthetic sensory perceptions are developed through: Listening to poem (Example: "Beauty Blind"). Reading of Helen Keller's blindness and her enjoyment of beauty in an unusual way, and her sensitiveness to surroundings. Experiencing sensations with tasting items of food (Examples: sugar and vinegar). Experiencing the look and feel of a variety of textures (Examples:	Evidence in written report of: 1) skill in expressing thoughts in writing; 2) interest in beauty; 3) awareness of beauty; 4) appreciation for beauty.

MAJOR PROBLEM I (continued)

satin, brocade and corduroy).

Recalling sounds of nature and of people (Examples: singing of red bird and the laughter of children.

Recalling pleasant aromas (Examples: freshly baked bread and a fragrant bath powder).

Each one selects one of her own experiences of beauty and writes a description of it.

Pupils summarize by stating generalizations.

THE UNIT

Unit Title: "Beauty As It Affects Individuals and Families"

Major Problem II: How can a problem concerning principles of art in daily living be solved?

Concept: Problem Solving

Illustrative Desired Behaviors	Generalizations to be Recognized	Suggested Learning Experiences	Illustrative Situations for Evaluation
Evidences some awareness of and ability to use the problem-solving process.	An orderly and logical plan of action contributes to solving problems effectively.	Problem-solving process, one method of solving problems, examined through: Reading, studying, and discussing six steps to problem solving (taken from SRA booklet, "How to Solve Your Problems,"[1]).	Evidence of awareness of problem-solving process as a way to solve problems. Evidences of skill in: 1) relating facts, ideas, and process to situations; 2) seeing cause and result relationship; 3) giving quality contributions to group problem solving; 4) working effectively alone in solving individual problem.
Exhibits growing ability to apply probelm-solving process to selected problems concerning use of art principles in daily living.	The individual has a share of responsibility for solving his own and his family's problems.	The process of problem-solving experienced through:	

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[1] Robert H. Seashore and A. C. Van Dusen, How to Solve Your Problems, Science Research Associates, pp. 14-20.

	Group selecting a problem concerning principles of art in daily living selected from teacher's suggested list (Example: "How shall I decide what kind and size pleats to make in my skirt?").	Evidence of willingness to be of service to the group of which she is member.
	Group solving problem by using problem-solving process. (Use the six steps to problem solving as a guide (Appendix C).	
	Individuals selecting and solving problems of own or one from suggested list. (Use the six steps to problem solving as a guide).	

THE UNIT

Unit Title: "Beauty As It affects Individuals and Families"

Major Problem III: How does one begin to develop standards for judging beauty?

Concept: Relationship of Art Principles to Beauty

Illustrated Desired Behaviors	Generalizations to be Recognized	Suggested Learning Experiences	Illustrative Situations for Evaluation
Develops an awareness of basic art principles and how they can be used to judge beauty.	An understanding of the principles and elements of design can contribute to one's sensitivity to and enjoyment of beauty and to the satisfactions of daily living.	The need for some standards for judging beauty is developed through: Class discussing why something is thought to be beautiful (Introduced by incomplete sentence, "This dis is beautiful because. . . .").	Evidences of skill in: 1) stating significant ideas briefly; 2) stating implications developed from reading and observing; 3) relating facts and ideas to situations in a realistic manner; 4) summarizing lesson by incorporating the main points from the lesson.
Begins to realize the use and relationship of structural and decorative line in creating pleasing design.	Structural design, which is essential to every object is composed of size, form and color, and texture while decorative design is not essential and it is surface enrichment of the structural design.	Pupils with teacher's guidance define class problem concerning how to develop standards for judging beauty through: Class deciding through discussion	Evidence of: 1) reading widely; 2) willingness to accept some responsibility for process and result in solving problem.

MAJOR PROBLEM III (continued)

Begins to recognize the importance of training in solving own art problems.	structural design.	what it is the group want to do and what does the group need? Solve class problem through: Following the six steps to problem solving. Reading from suggested references (Appendix B) to discover: How beauty is judged. How principles of design help in judging beauty. How structural and decorative design differ. Developing definitions for vocabulary words as they are met in reading or discussion. Stating and discussing important ideas and sources of information. Listing on board the	Evidences of beginning to use art principles as a guide in judging beauty.

and the principles of art with illustration of each.

Observing and analyzing objects on display for beauty (Examples: towels and necklaces).

Pupils summarize by stating generalizations.

UNIT TITLE

Unit Title: "Beauty As It Affects Individuals and Families"

Major Problem IV: How can proportion be used effectively in making surroundings beautiful?

Concept: Proportion

Sub-Problems: What is proportion? How is Proportion obtained? Why are well proportioned arrangements more pleasing?

Illustrative Desired Behaviors	Generalizations to be Recognized	Suggested Learning Experiences	Illustrative Situations for Evaluation
Develops a growing sensitiveness to and appreciation for pleasing space relations.	When any combination of materials show a satisfying relationship between its parts and between the parts and the whole, a sense of harmony is achieved.	The need to know more about the use of proportion is developed through: Observing and telling why some arrangements are pleasing and some are not pleasing (Examples: Flower arrangements on different size tables and arrangement of articles on bulletin board). Pupils with teacher's	Evidences of skill in: 1) expressing feelings; 2) recognizing, stating, and defining problem; 3) stating implications developed from reading; 4) recognizing significant ideas and forming generalizations; 5) applying knowledge and relating facts to a specific situation; 6) summarizing the points from the lesson; 7) putting together parts of experience with new material into a well-integrated whole.

guidance define class problem concerning how proportion can be used effectively in making surroundings beautiful through:

- Class deciding through discussion what it is the group wants to do and what the group needs.

Group solve problem through:

- Following the steps of problem solving.

Reading suggested references and studying illustrative materials that show the uses and effects of different proportions.

Developing principles of proportions (Taken from Art Education for Daily Living[1]).

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[1] Mabel Russell and Elsie Wilson Gwynne, Art Education for Daily Living, p. 58.

MAJOR PROBLEM IV (continued)

Exhibits some ability to select and make arrangements in which the various proportions are pleasing.	Beauty can be created and satisfaction gained when one has learned how to divide space into pleasing relationships.	Studying and analyzing diagrams representing shapes that are found in everyday materials. Studying the Greek oblong and stating the relationship of its width and length.	Evidences of: 1) recognizing and creating pleasing relationships of space; 2) interest in proportion shown through: Carefullness in creating design. Neatness.
		Choosing from greeting cards the ones that are pleasing in proportion and telling why.	Evidence of skill in creating a design pleasing in proportion and in analyzing the design.
		Selecting the width and length of an object for a specific use (Example, a poster to be placed on the bulletin board).	
		Studying and analyzing rectangular spaces divided horizontally into two parts.	
		Selecting examples of space divided into three parts, one of these parts being dominant and the others pleasing in	

MAJOR PROBLEM IV (continued)

their relation to it and to each other (Example: filing cabinet drawers).

Studying and analyzing the mounting of a square, vertical rectangle, and a horizontal rectangle.

Mounting a square, a vertical rectangle, and a horizontal rectangle shape.

Create individually a design pleasing in proportion mounted on construction paper. Analyze the whole according to the principles of proportion developed, and tell how a sense of harmony is achieved.

Pupils summarize by stating generalizations.

THE UNIT

Unit Title: "Beauty As It Affects Individuals and Families

Major Problem V: How can one use principles of balance in his daily living?

Concept: Balance

Sub-Problem: What is balance? How does one balance objects?

Illustrative Desired Behaviors	Generalizations to be Recognized	Suggested Learning Experiences	Illustrative Situations for Evaluations
Begins to recognize and apply the principles of balance in everyday life situations.	A sense of security, rest or repose can be achieved in a design by formal or formal balance.	The need to know more about balance and how to use it is developed through: Discussing how from early infancy one has a fear of falling or losing his balance. Observing and discussing examples of balance (Examples: pencil balanced on finger and balance of objects placed on counter). Pupils with teacher's guidance define class	Evidences of "seeing behind" situation to cause Evidences of skill in: 1) recognizing, stating and defining problem; 2) working cooperatively with group; 3) applying knowledge and relating facts to a specific situation; 4) stating implications developed from reading and exploring; 5) stating and applying the problem-solving technique to situations requiring its use;

Develops some consciousness of the feeling of satisfaction from balanced arrangements.	problem concerning how one can use balance in his daily living through: Class deciding through discussion what it is the group wants to do and what the group needs.	6) putting together part of experiences with new material into well-integrated whole; 7) recognizing balance; 8) balancing arrangements.
	Group solves problem through: Following the steps of problem solving.	Evidences of: 1) willingness to be of service to the group of which he is a member; 2) feeling of satisfaction from balanced arrangements.
	Small groups studying balance through: Reading suggested references (Appendix B). Observing objects on display (Examples: mobile and vase). Studying illustrations of balance (Examples: place settings on table and house exteriors).	

MAJOR PROBLEM V (continued)

Each group presenting significant ideas to class in some manner.

Discussing ideas and formulating generalizations.

Developing definitions for vocabulary words as they are met in reading and discussion.

Each group selects one problem from suggested list and solves by applying the principles of balance. Analyze how balance was achieved.

Pupils summarize by stating generalizations.

THE UNIT

Unit Title: "Beauty As It Affects Individuals and Families

Major Problem VI: How can one use rhythm to achieve beauty in surroundings?

Concept: Rhythm

Sub-Problems: What is rhythm? How can one obtain rhythm? How does rhythm help in producing harmony?

Illustrative Desired Behaviors	Generalizations to be Recognized	Suggested Learning Experiences	Illustrative Situations for Evaluation
Develops some awareness of rhythmic movement.	Rhythm is the feeling of regular and flowing movement created by a pattern of arrangement of lines, shapes and colors.	Awareness of rhythmic movement is developed through: Discussing illustrations of rhythm (Examples: typing, music, marching, heartbeat, dancing, poetry, pinecone, and walking). The need to know how rhythm is obtained and how it helps produce	Evidences of: 1) alertness and interest in what class is doing; 2) awareness of rhythm. Evidence of skill in: 1) recognizing, stating, and defining problem; 2) applying the problem-solving technique to situations requiring its use; 3) putting together parts of experience with new material into a well-integrated whole and analyzing.

MAJOR PROBLEM VI (continued)

Shows growth in ability to create, choose, and use materials in which there is pleasing rhythmic movement.	harmony is developed by: Observing and discussing examples of rhythm (Examples: sea-shell and wall-paper).	Evidence of: 1) awareness that some ideas read are more significant than others; 2) growth in ability to choose and use materials in which there is pleasing rhythmic movement; 3) enjoyment of rhythmic movement.
Shows growing enjoyment of rhythmic movement and of understanding its part in producing harmony.	Pupils with teacher's guidance define class problem concerning how one can obtain rhythmic movement and how it helps produce harmony through: Class deciding through discussion what it is the group wants to do and what the group needs. Group solves problem through: Following the steps of problem solving. Reading and discussing suggested reference (See Appendix B) to discover: How one can obtain	

rhythm.
How rhythm can help to produce harmony.

Developing definitions for vocabulary words as they are met.

Observing objects on display that have pleasing rhythm and analyzing them telling how rhythm was obtained to produce harmony (Examples: leaves, feathers, buttons, and fabric).

Each one finds an illustration of rhythm in a picture. Analyze telling how rhythm was obtained to produce harmony.

Pupils summarize by stating generalizations formed by group.

THE UNIT

Unit Title: "Beauty As It Affects Individuals and Families

Major Problem VII: How can one use emphasis effectively in daily living?

Concept: Emphasis

Sub-Problems: What is emphasis? How may one show emphasis? How may one decide what to emphasize? How may the lack of emphasis or over emphasis affect one?

Illustrative Desired Behaviors	Generalizations to be Recognized	Suggested Learning Experiences	Illustrative Situations for Evaluation
Begins to recognize emphasis in many forms.	Drawing attention to the most important part of any arrangement by use of objects, colors, lines, shapes, and texture can create interest and give a single impression of harmony.	Recognition of emphasis in many forms and awareness of the need to use it is developed through: Reviewing principles previously studied using some illustrations that show emphasis and some that do not (Examples: plate of food and exterior of house). Observing and	Evidences of recognizing emphasis Evidences of skill in: 1) recalling specific information; 2) stating and defining problem; 3) applying problem solving technique; 4) interpreting and applying information to the specific problem; 5) selecting a problem appropriate for ability; 6) working effectively alone; 7) creating emphasis through solving of

Shows some evidence of skill in selecting and using objects effectively in making art arrangements in which emphasis is used effectively.	discussing the effects of emphasis and of the lack of emphasis and over emphasis in the above illustrations.	individual problem.
	Pupils with teacher's guidance define class problem concerning how one can use emphasis effectively through: Class deciding through discussion what it is the group wants to do and what the group needs.	
	Group solves problem through: Following the steps of problem solving.	
	Reading suggested references (See Appendix B) and studying illustrative material showing emphasis to	

MAJOR PROBLEM VII (continued)

discover:
- How may one show emphasis?
- How may one decide what to emphasize?
- How may lack of emphasis or over emphasis affect one?

Discussing the findings and formulating generalizations.

Each create an arrangement illustrating use of emphasis in daily living. Analyze telling what was emphasized and how it was emphasized.

Pupils summarize by stating generalizations formed by group.

THE UNIT

Unit Title: "Beauty As It Affects Individuals and Families"

Major Problem VIII: How can one select and use color effectively in his daily living?

Concept: Color

Sub-Problems: How do colors differ from one another? How may color affect an individual? How do the principles of art apply to the use of color? How can pleasing color harmonies be developed?

Illustrative Desired Behaviors	Generalizations to be Recognized	Suggested Learning Experiences	Illustrative Situations for Evaluation
Demonstrates an awareness, interest, and a general understanding of the relationships of hue, value, and intensity, and their effects in color harmonies.	Obtaining pleasing effects from color in daily living depends upon one's understanding the effects of use of color and an awareness of and ability to create pleasing color harmonies.	An interest in color and an awareness of the need to know how to select and use color effectively is developed through: Using prism to show breaking down of light into various hues.	Evidences of: 1) interest in color; 2) feeling the difficulty or problem and perceiving how it relates to what he already knows; 3) intellectual curiosity--wonders why, how, or what.
	Colors affect each other and their surroundings, and are in turn affected by their surroundings.	Observing the colors in the classroom and finding variations of one color.	Evidences of skill in: 1) stating implications developed from reading; 2) seeing cause and result connection; 3) Comprehending and

MAJOR PROBLEM VIII (continued)

Shows growing understanding of how colors may affect individuals. Shows some evidences of developing an intelligent and understanding relationship between color and the principles of art. Exhibits some skill in combining colors harmoniously and applying the principles of art in making color arrangements. Attempts to identify the characteristics of an arrangement which is admired. Exhibits a growing appreciation for pleasing color.	Pleasing color harmonies include either related or contrasted colors.	Pupils with teacher's guidance define class major problem concerning how one can select and use color effectively by discussing what it is the group wants to do and what the group needs. Define sub-problems. Group solves problem through: Following the steps of problem solving. Reading suggested references (Appendix B). Developing and stating generalizations throughout study. Developing definitions for vocabulary words as they are met in reading and discussion.	using terms commonly used in relation to problem that is related to principles of art in everyday living. Evidences of skill in: 1) making comparisons of the effects created by different values and intensities of color; 2) discovering relationships between color and the principles of art. 3) using principles in concrete situation and in understanding their relationship; 4) using accurate standards in making judgments; 5) incorporating the points made by the class members in summarizing the problem. Evidences of appreciation for pleasing color combinations.

MAJOR PROBLEM VIII (continued)

Studying color wheel, value chart, and intensity chart.

Observing the relationships of hues through:

Mixing paints of different hues and examining color wheel to see their relationship with one another.

Studying the effects of warm and cool colors for dress and home furnishings through examples (Examples: dresses worn by girls and pictures of rooms).

Observing how every hue has a range in value from very light to very dark

MAJOR PROBLEM VIII (continued)

depending upon the amount of light or dark it contains by:

Experimenting adding white or black to a hue.

Studying values of hues used in the classroom.

Analyzing illustrations that use two or more values showing that the greater the contrast in value the more striking the effect.

Demonstrating the ways the intensity (brightness or dullness) of hue may be changed by adding a complementary color or by adding black.

MAJOR PROBLEM VIII (continued)

Analyzing illustrations showing the principles of intensity.[1]

Analyzing articles, pictures and clothing that illustrate the principles of color harmony.[2]

Review art principles by showing how they apply to the use of color.

Pupils summarize by stating generalizations formed by group.

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[1] Mable Russell and Elsie Wilson Gwynne, Art Education for Daily Living, p. 150.

[2] Ibid., pp. 154, 157, 160, 162.

THE UNIT

Unit Title: "Beauty As It Affects Individuals and Families"

Major Problem: IX: How can one use texture effectively in adding beauty to daily living?

Concept: Texture

Sub-Problems: What is texture? How does texture add beauty to daily living? How can textures be used to develop interesting combinations?

Illustrative Desired Behaviors	Generalizations to be Recognized	Suggested Learning Experiences	Illustrative Situations for Evaluation
Displays a beginning interest and a general understanding of texture as it affects the appearance and determines the use of materials and objects.	Interest and variety can be produced in everyday living by combining materials and/or objects that have different but compatible surface qualities.	Developing an interest and a realization of a need for a general understanding of texture through: Touching different fabrics with eyes closed and then observing the same fabrics to get the sensations of textures (Examples: denim, tapestry, velvet, satin and, polished cotton).	Evidences of interest in texture Evidences of skill in: 1) identifying, defining, and planning procedure for solving problem; 2) seeing cause and result connection; 3) using and selecting interesting texture combinations; 4) working cooperatively and productively in groups; 5) using accurate standards in making judgments;
Exhibits some skill in selecting and using various textures in interesting combinations.			

Shows growing understanding of the relationship of the choice and use of suitable textures to the achievement of harmony and beauty in everyday life.		Studying exhibit of beautiful textural relationship.	6) incorporating the points made by class members in summarizing the problem; 7) choosing textures that go well together.
		Pupils with teacher's guidance define class problem concerning how one can use texture effectively in his daily living through: Class deciding through discussion what it is the group wants to do and what the group needs.	
		Group solves problem through: Following the steps of problem solving.	
		Reading suggested references (See Appendix B).	
		Studying and analyzing texture combinations some suitable and some unsuitable	

MAJOR PROBLEM IX (continued)

(Examples: string of pearls worn with rough tweed dress and crystal with fine china).

Analyzing texture and seeing how it is influenced by the way in which light falls upon it (Examples are below).

In rough fabrics there is a suggestion of depth caused by the way in which the rays of light are unevenly reflected. It can give the feeling of warmth and it makes the object seem larger.

A shiny surface by reflecting light, attracts attention and makes the object seem larger.

Select a sample of material appropriate for a dress for some

MAJOR PROBLEM IX (continued)

member of the class, decide which beads are most attractive and suitable and justify selection (Use materials and beads provided).

Pupils summarize by stating generalizations formed by group.

THE UNIT

Unit Title: "Beauty As It Affects Individuals and Families"

Major Problem X: How can one use line, shape, and form wisely to create a pleasing design?

Concept: Using line, shape, and form effectively

Sub-problems: What is the relationship of line to shape and form? How are line, shape, and form used to get desirable effects?

Illustrative Desired Behaviors	Generalizations to be Recognized	Suggested Learning Experiences	Illustrative Situations for Evaluation
Exhibits a growing awareness of the relationship of line to shape and form.	The wise use of line to determine the shape of forms and the shapes of parts comprising them can lead to the creation of a pleasing design.	The need to know more about how to use line and its relationship to shape and form is developed through: Studying the human body to distinguish line, space, and form.	Evidence of interest in line, shape, and form
Begins to see effects created by lines, shapes, and forms.			Evidence of skill in: 1) seeing and relating to class members cause and result connection; 2) recognizing significant ideas and verbalize these;
Attempts to identify the characteristics of line and to evaluate the effective use of line.	Optical illusions can be created by lines to produce more pleasing proportion.	Compare a finished garment with the picture of it cut from the pattern envelope.	3) discovering relationship of different kinds of lines in creating pleasing design;
Shows growing understanding of the art elements	An object gains in character and distinction when the form follows the use or function for which it		4) showing discriminating perception of design quality;

to principles of design and both of theirelationships to beauty.	is intended.	Pupils with teacher's guidance define class problem concerning how one can use line, shape, and form wisely by discussing what the group wants to do and what the group needs. Group solves problem through: Observing examples of suggestions of line, shape, and form in nature (Examples: rocks and driftwood). Finding illustrations that show expressions with line (Examples: happiness and sadness). Observing lines that illustrate effects of line	5) stating generalizations. Evidences of understanding and using the art elements and principles of art in solving individual problems.

MAJOR PROBLEM X (continued)

(Examples: lines in windows and doors and stripes in clothing).

Finding and analyzing examples of lines creating optical illusions (Examples, vertical stripes, horizontal stripes, plaids, and contrasting accent).

Studying the form of objects which are better fitted for particular use because of their form (Examples: irons and knives).

Each select picture and mount it correctly, discuss the beauty seen in it. Show the relationship of the art elements to principles of art and both of their relationships to beauty.

THE UNIT

Unit Title: "Beauty As It Affects Individuals and Families"

Major Problem XI: How are art principles related to choices involved in preparation for making a garment?

Sub-Problem: How can one make wise choices in selecting pattern, fabric, buttons, and other notions for garment?

Illustrative Desired Behaviors	Generalizations to be Recognized	Suggested Learning Experiences	Illustrative Situations for Evaluation
Shows some progress in skill of understanding and applying the steps of problem solving to selected everyday individual and/or family problems. Exhibits some skill in recalling selectively from past experiences and organized learning and in applying new knowledge of facts, ideas, and processes	By using an orderly and logical plan of action in individual selection of materials for garments one can gain skill in critical thinking and in decision making. Selection of a pleasing combination of fabric, design, buttons, and other notions for a garment lead	State and discuss problems that can arise in preparation for making a garment. Small groups participate in buzz session and report to class which problems they think are related to the art principles. Pupils with teacher's guidance define class	Evidences of skill in: 1) understanding and following the steps of problem solving; 2) perceiving how the problem relates to what he already knows; 3) recognizing need for data; 4) weighing carefully the ideas that both teacher and pupils express; 5) working cooperatively and productively in group.

MAJOR PROBLEM XI (continued)

in the related art area to selected every-day individual and/or family problems.	one toward a satisfying experience of beauty.	problem through discussion.	Evidences of skill in: 1) presenting and reporting to class-mates in an effective and interesting manner; 2) weighing information carefully and seeking added information when their own is not adequate; 3) summarizing all important generalizations.
Can see some implications of learnings for present and future problems.		Divide into smaller groups to collect data and evidence on particular phase of problem such as: How does color influence choices of fabric, pattern, buttons, and other notions? How does texture influence choices of fabric, pattern, buttons, and other notions?	Evidences of: 1) realization of some implications; 2) wise selection for garment.

MAJOR PROBLEM XI (continued)

How do line, shape, and form influence choices of fabric, pattern, buttons, and other notions?

Groups report findings to class and tell the relationship of the art elements to the principles of art in creating harmony.

Participate in discussion and develop generalizations.

Pupils summarize unit and tell how the learnings can be used now and in the future to help them as individuals or as family members.

IV. EVALUATION OF LEARNINGS FROM UNIT

Evaluation of learnings from the unit was carried out in several ways in this study. These included a final unit test, "Beauty As It Affects Individuals and Families" (Appendix D), developed by the investigator; written and work assignments completed by pupils; observations of pupils in the learning situation; and evaluations made by pupils at the close of the unit. The Watson-Glaser Critical Thinking Appraisal, Form Ym was administered before and after the unit to determine if any major change could be identified in pupils' ability to think critically.

The Unit Test. The evaluation instrument developed for this study, "Beauty As It Affects Individuals and Families" (Appendix D), was based on objectives for the unit. A study was made of an evaluation instrument, "Home Art Placement Test, developed by Hatcher, Kivlin, and Salmon for the following purposes:

> (1) To diagnose previous learning in art in order to better plan the basic course in terms of the real needs of students. (2) To supplement other means of evaluation in determining the growth of students in the basic home art courses. (3) To attempt to determine the degree to which students may have already achieved the objectives of the basic home art course in other classes or experiences. If the person has a satisfactory achievement in this area, it would seem that he or she would find more challenge in an advanced

> course. (4) To motivate the interest and achievement of students in home art.[1]

With Hatcher's permission some items developed for the test in this study were similar in form to items in the "Home Art Placement Test" mentioned above. The test developed here provided opportunities to apply basic principles in art to problem-solving situations similar to those encountered by pupils in daily living.

Before the test was administered, scoring procedures were formulated by the investigator. An answer sheet containing types of responses for which credit would be given and for which credit would not be given was constructed.

Question I included two pictures showing ways of serving foods. Statements relating to principles of color, rhythm, balance, and texture accompanied each picture. Pupils were to analyze the pictures and indicate which statements concerning each picture were true and which were false. Pupils were more successful in recognizing both true statements and false statements concerning use of color, rhythm, and texture than they were in recognizing both true and false statements concerning use of balance.

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[1] Hazel M. Hatcher, Laura Kivlin, and Christine Salmon, Home Art Placement Test.

Question II included illustrations depicting two ways of decorating the same room. Statements relating to principles of texture, balance, line, and color accompanied each picture. Pupils were to indicate the true statements concerning each picture. In general pupils were more successful in recognizing both true statements and false statements concerning texture and use of line than they were in recognizing both true statements and false statements concerning balance and the effect of color value.

Question III included a picture of a house exterior. Statements relating to principles of color, proportion, and balance accompanied the picture. The pupils were to indicate if statements about the house exterior were true or false. The pupils were most successful in answering the question concerning the use of a complement of a color to show emphasis. The pupils were less successful in answering the question concerning balance. The pupils were to identify one other way proportion was used in a pleasing relationship in the exterior of the house shown in the picture and to describe how it was achieved. Twenty-seven pupils identified one other way proportion was used in pleasing relationships and told how it was achieved. Four pupils identified a way, but did not tell how it was achieved.

One pupil omitted this part of question III. Pupils saw pleasing relationships in eight specific aspects of the building exterior: garage door to house door, height of house to length of house, width of chimney to height of chimney, sections of house with vertical siding to sections of house with horizontal siding, length of raised part of roof to the remaining length of roof, tree to house, shrubs to house, and windows in door to door.

Question IV included five articles or pictures that represented three different color harmonies. Fifteen pupils identified the colors and analyzed by telling the correct color harmony shown in each of the five articles or pictures. Six pupils analyzed one article or picture incorrectly. Six pupils analyzed two articles and/or pictures incorrectly. Four pupils analyzed three articles and/or pictures incorrectly. One pupil, who had been absent two days analyzed all five of the articles and/or pictures incorrectly. There was evidence that there was a need for increased learning opportunities in working with color.

Question V was to be answered by a written discussion of beauty the pupil saw in any one of a variety of objects, such as a pine cone, seashell, and egg cup.

Vocabulary words from the unit were to be used in the discussion. In general the pupils expressed effectively their awareness and appreciation of beauty. Five of the pupils spent more than the anticipated amount of time in answering question VI, and they did not allow sufficient time to deal with question V thoroughly. Several pupils did not apply all the principles of art and elements of design in their discussion of beauty in the object.

Question VI involved the judging of two cups of the same pattern. One was American Haviland, the other French Haviland, but this information was not given to the pupils. After judging according to a predetermined table of standards, the reasons for their decisions were to be given. In general, pupils analyzed the cups critically and expressed reasons for their decisions well. Some of the reasons for decisions given were: one center of interest displayed; decorative design not added without thought; design adequately fills space and looks orderly; proportion of size of handle to cup pleasing; long, rhythmic movements created by leading lines; form follows function; gold band places emphasis on top which makes it a little top heavy; decorative design not continuous enough--needs something between flowers to give rhythmic movement; handle too small to be comfortable; and cup too fragile to use. The pupils seemed to be able to reason in organized and critical way. Only two pupils expected the American Haviland to be more expensive. Two of the pupils did not think one cup would be more expensive than the other because they were both Haviland but used for different occasions, therefore allowing for the observable differences in the two cups.

Question VII in the test included a child's dress and three groups of accessories. The problem was stated thus:

> Mrs. Brown was called out of town on account of her mother's illness. Since school was in session, she left fourteen-year old Judy and six-year old Mary home with their father. Mary was invited to her friend's Saturday afternoon birthday party. Mary knew what dress she was to wear, but she needed Judy to help her decide what accessories to wear with it. They had three groups of accessories from which to choose.

The child's dress was displayed on the bulletin board. The plaid in the dress was predominately navy with smaller amounts of royal blue and scarlet. The dress was accented with a wide, white, circular collar. Accessories were placed in groupings on a table near the dress. Group A included a red sweater, a red purse, and a red hair clip; group B included a white sweater with a blue and green floral design, a white purse, and a jeweled hair clip;

and group C included a navy blue sweater, a navy blue purse, and a navy blue hair clip. In solving the problem pupils were to state the effect that would be created by each of the groups of accessories if it were chosen to wear with the dress. This question was structured to assess pupils' ability to see aspects of problem situations which would need to be considered before decisions could be made concerning solutions. In general the pupils' selections and reasons for these selections gave evidence of their awareness of and ability to use the problem-solving process in applying art principles to this area of family living. Twenty-six of the pupils chose the group A accessories. Their answers gave evidence of some skill in selecting and making wise use in everyday life of articles that show beauty in design and color.

Facial expression, test responses, and oral discussion after the test showed evidence of enthusiasm and interest. One pupil pointed out that the flowers in the white sweater of group B would create a pattern of their own and clash with the plaid of the dress. Another pupil thought the red sweater would emphasize the red lines in the plaid dress and thus the whole outfit would show harmony in rhythm between hair clip, dress, and purse. Another pupil felt the use of the group of red accessories would emphasize the red in the dress and its complement, green. Also she felt this group of accessories would accent the white collar so there would be emphasis on the girl's face. Two pupils chose group B because they felt the sweater was dainter and more suitable for a special occasion. Four pupils chose the navy blue accessories of group C because they thought the red too bright in group A, or they thought the dark blue sweater would let more emphasis rest on the collar.

Question VIII involved a problem to solve. This question was given to assess growth in skills and abilities of each pupil toward meeting all objectives of the unit. Pupils were to make an arrangement of beauty on a table using three to five of the many objects and/or fabrics available to them. A rating sheet was set up by the teacher before the test. The rating scale included the following items: suitable to location; scale of objects in relation to each other; center of interest; balance; pleasing rhythm; harmony in colors used; compatibility in character of objects chosen; compatible and interesting use of texture; originality; and evidence of satisfaction derived from arrangement. In general the pupils reported this experience to be "real fun" and "exciting." Ten of the pupils made arrangements judged by the teacher as very interesting and unusual. There was no positive correlation between performance on this question and success on the test as a whole. Several of the pupils who made low scores on other portions of the test enjoyed doing this and did well. Two pupils took extra time in making their unique arrangements, but they were quite unaware of the time. One pupil found this question extremely difficult. This pupil seemed to have difficulty in making other types of decisions. Five of the pupils showed evidence of the need for more experiences in choosing objects compatible to each other. In general, however, pupils were rated "Successful" in solving this problem.

As measured by the test (Appendix D), there appeared to be growth toward attainment of all unit objectives. Perhaps the unit test measured best the following two objectives: gains skill in selecting and making wise use in everyday life of articles that show beauty in design and color, and evidences awareness of an ability to use the problem-solving process in applying art principles to areas of family living.

Since many of the pupils felt pressed for time, perhaps the test could be shortened. Pupils spent the largest amount of time in answering question VI. Pupils displayed much interest, enthusiasm, and enjoyment during the test. They stated that the test was difficult, but that it did not seem like a test because it was "so much fun."

As measured by the test, there appeared to be a need for more class experiences related to learning principles of balance and color harmonies. There was an apparent need for more actual classroom experiences in which pupils might select and arrange objects and articles.

Written and work assignments. While pupils' scores on the unit test were considered important in this study, other means of evaluation were utilized. Analysis of quality of written and work assignments completed by pupils gave evidence of growth toward attainment of all unit objectives. Comparison of each pupil's written description of her experience with beauty at the beginning of the unit with her written discussion of beauty seen in the picture of her choice at the close of unit indicated a growth toward the development of the unit objectives. The pupils' discussions indicated not only more awareness and appreciation for beauty in surroundings, but the discussions indicated growth in individual ability to recognize and tell why something was beautiful to them. The use of vocabulary words from the unit seemed to help pupils express themselves effectively.

Each problem in the unit was taught through the problem-solving approach. Pupils appeared to become quite aware of the total problem-solving process as a way to identify and solve problems. They appeared to gain in ability to recognize important aspects of problem situations. Analysis of the quality of written and work assignments completed by pupils during the unit showed evidence of growth in ability to recognize and define a problem; to relate facts, ideas, and process to situations; to see cause and result relationship; to work effectively alone and in a group when solving problems; and to state and use implications developed from reading, listening, and observing.

General improvement in quality of pupils' choices in selecting and making wise use in everyday life of articles that show beauty in design and color, as shown through assigned work experiences and unassigned experiences, indicated an increase by pupils in depth of insight.

Observation of pupils at work. In the planning of the unit illustrative desired behaviors and situations for evaluation were recognized for each phase of the unit. Records of observations of pupils in learning situations were used in making evaluation of pupils' over-all learnings from the unit. A rating scale was devised by the investigator to record the quality of discussion and affective behaviors (Appendix F). The investigator regarded it appropriate to evaluate pupils with respect to their interests, attitudes, appreciation, and values, components of learning in the affective domain, as identified by Krathwohl, Bloom, and Masia.[1] Therefore the check list included receiving, responding, and valuing in the affective domain. Each objective for the unit in this study could be placed in one of the three major domains or classes, but, as stated by Krathwohl _et al_., "no objective in one class was entirely devoid of some components of the other two classes."[2] Analysis of observations recorded on the check list showed a general progression from a level at which pupils appeared to be aware of beauty to a level where they responded to beauty with a positive feeling. There was some evidence that pupils were forming a value system as shown by their continuing expressed desire to choose possessions which were beautiful in color and design.

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[1] David R. Krathwohl, Benjamin S. Bloom, and Bertram B. Masia, _Taxonomy of Educational Objectives, The Classification of Educational Goals, Handbook II: Affective Domain_, p. 6.

[2] _Ibid_., p. 8.

Analysis of quality of pupil response and of depth of insight evidenced by their response indicated changed behavior in line with unit objectives. There were evidences of increased skill in relating facts, ideas and processes to situations; giving quality contributions to group problem solving; stating significant ideas briefly; relating facts and ideas to situations in a realistic manner; summarizing lessons by incorporating the main points; putting together parts of experience with new material into a well-integrated whole; recognizing significant ideas and forming generalizations; and comprehending and using terms related to principles of art in everyday living.

Evaluation by pupils. Although evaluations made by pupils are recognized as being somewhat invalid, it was deemed important to the investigator to know how pupils felt about learnings in the unit and how they expressed themselves. Pupils' evaluations of the unit dealt with the following questions: (1) What is your attitude toward the freedom given in this unit? (2) In what way or ways has the unit been interesting or uninteresting? (3) Do you think you have learned very much that is of help to you now or in the future? Explain how. In response to the first question pupils indicated they liked the freedom they had in reading assignments, learning meanings of vocabulary words, defining and solving problems interesting to them, expressing opinions, making arrangements, discussing to help each other understand better, and working with the real objects. Pupil T wrote that she like the way the unit was taught because "you could go ahead on your own and acquire more knowledge if you liked. Your material was not limited." Pupil K stated, "I do not believe that the teaching of art principles and elements of design can be crammed down a pupil's neck. When I was given more freedom, I found that learning was more fun because I was finding out new things on my own." Pupil E stated she questioned the freedom. She felt that all the teachers were trying to give more freedom, and it was confusing to her when she tried to figure what to do when a definite assignment had not been given.

Pupils found many ways that the unit was interesting. For some it was an area they had never studied before, and others reported they had never thought of beauty in so many ways. Some found it interesting to work with the real objects and to solve problems pertaining to real life experiences. One pupil stated that she enjoyed the relaxed atmosphere of the class discussions, and many stated that they found the free class discussions most interesting and helpful. Some pupils expressed interest because they reported they knew what to look for while judging beauty. One pupil felt the attitude of the teacher made it more interesting.

Pupils in general indicated the learnings from the unit were of help to them now and would be in the future. They reported they had become aware of and learned to appreciate beauty in their surroundings. Many pupils felt the skill they gained in selecting and making wise use in everyday life of articles that show beauty in design and color helped them now and that it would in the future. One pupil expressed how she had learned to make things look more beautiful. This she felt would make her feel more comfortable and would make her happier. She felt that this would make the people around her happier too. One pupil stated that she had a better idea of why she liked certain things and why she disliked others. Many of the pupils believed the help given in defining and solving their own problems would always be a great help to them in many areas of life. Pupils reported that a new field of reading material had been introduced to them by having books from the school library in the classroom during the study of this unit.

The Watson-Glaser Test. The Watson-Glaser Critical Thinking Appraisal, Form Ym was developed with critical thinking viewed as a composite of attitudes, knowledge, and skills.[1] This composite included: (1) attitudes of inquiry that involve an ability to recognize the existence of problems and an acceptance of the general need for evidence in support of what is asserted to be true; (2) knowledge of the nature of valid abstractions, inferences, and generalizations in which the weight of accuracy of different kinds of evidence are logically determined; and (3) skills in employing and applying the above attitudes and knowledge. The items on the test involved problems, statements, arguments, and interpretations of data similar to those which a citizen in a democracy might encounter in his daily life as he works, reads the newspaper, hears speeches or participates in discussion on various issues. Watson and Glaser indicated that:

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[1] Goodwin Watson and E. M. Glaser, Watson-Glaser Critical Thinking Appraisal Manual, p. 10.

> The ability to think critically is generally recognized as an important and pervasive educational objective in a free society. In fact, it is frequently regarded as one of the major goals of instruction at all levels. It is also considered a desirable outcome of various specific courses, particularly in social studies, mathematics, and science. The "Critical Thinking Appraisal" measures the extent to which examinees have mastered certain critical thinking skills and thus provides a partial estimate of the extent to which this objective of instruction has been achieved. The availability of comparable forms makes it possible to measure development of these skills, either as a consequence of specific instruction or over an extended period of time.[1]

The Watson-Glaser Critical Thinking Appraisal, Form Ym was administered immediately before and after the unit in this study. The results of the retest showed a group mean score change of + 2.43 (Appendix H). In general pupils earned slightly higher scores on the retest than on the test. Eighteen of the thirty-two pupils in the group improved their scores from test to retest, ten regressed, and four remained unchanged. Raw scores on the test ranged from 47 to 75; on the retest from 46 to 79 (Appendix H). Perhaps a more extensive period of instruction for critical thinking might be required to show a greater improvement in this skill.

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[1] Ibid., p. 9.

CHAPTER IV

SUMMARY AND RECOMMENDATIONS

The art of critical thinking is considered to be of vital importance to human existence, but apparently society has been much less than adequate in developing this ability. Teaching-learning situations incorporating a problem-solving approach to help pupils develop concepts and generalizations may assist in cultivating in pupils the ability to think critically.

The importance of competence in using art principles in all aspects of personal and family living has been recognized by home economics groups. These art principles may be taught in home economics classrooms. However, too often pupils are unable to apply information they learned in one area of home economics subject matter to other areas at the present time and in the future.

Emphasis on identifying and solving problems and relating art principles in a variety of subject-matter situations to many areas of living may improve pupils' abilities to think and solve their problems now and in the future.

I. SUMMARY

In this study the problem-solving approach was utilized in developing, teaching, and evaluating a unit for a Home Economics I class.

Statement of problem. The purposes of this study were (1) to develop a unit based on art principles using the problem-solving approach; and (2) to determine the learning that occurred as a result of teaching this unit to a group of Home Economics I pupils.

Procedure. As a basis for the development of a unit based on art principles and emphasizing teaching for improved problem-solving abilities, a review was made of the body of literature in the following fields: Learning through problem-solving and art as a part of home economics program.

A study was made of the twelve competences Peterson developed as ultimate objectives for the total secondary home economics program.[1] These competences were based on abilities, interests, and needs of adolescents; needs of young homemakers; skills involved in the problem-solving process; and current philosophy of home economics in the secondary school. Two of the competences, "Applying critical thinking skills to problems of personal and family living," and "Learning to appreciate beauty and its contributions to daily living,"[1] served as the basis for objectives for the unit in this study. Behaviors were identified that would lead to development of, appreciation for, and ability to use art principles in daily living. These behaviors were structured into problem situations and a unit was developed around these situations for a Home Economics I class.

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[1] Bernadine H. Peterson, "Experimental Use of the Problem Solving Method in Teaching a Beginning Home Economics Class," unpublished Doctor's dissertation, pp. 62-63.

Cumulative records for individual pupils included previous educational experiences and performance, guidance reports, and personal and family data sheets completed by pupils. These, together with observations of behavior, made it possible for the investigator to structure the unit in this study on needs and problems of the individuals in the group. Data from the cumulative records and the "Check List for Rating Scale" (Appendix F) enabled the investigator to analyze test responses and assess classroom behaviors of pupils more effectively than might have been possible without such data.

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[1] *Ibid.*, pp. 53-54.

Generalizations to be recognized by pupils and suggested pupil-learning experiences were identified for problems in the unit. Illustrative desired behaviors and situations for evaluation were recognized for each phase of the unit. Resources for pupils and teacher were listed and used in teaching the unit.

"Beauty As It Affects Individuals and Families," a unit test developed by the investigator, was administered after the unit was taught. The test was given to determine the nature and amount of pupil-learning in identifying and solving problems and in relating art principles learned in a variety of subject matter situations to many areas of living.

The _Watson-Glaser_ _Critical_ _Thinking_ _Appraisal_, _Form Ym_ was administered before and after the unit to measure growth in certain aspects of critical thinking ability of pupils.

Other means of evaluation included the investigator's analysis of written and work assignments completed by pupils in the learning situation, and evaluations made by pupils at the close of the unit.

Major Findings.

1. *There was evidence of pupil growth toward objectives of the unit.*

Test responses to "Beauty As It Affects Individuals and Families," pupil behaviors in learning situations observed and recorded by the investigator, daily written and work assignments completed by pupils during the unit provided evidence of definite growth toward the desired behaviors which were objectives for unit.

2. *Test results indicated that learning had occurred in identifying and solving problems and in relating art principles learned in a variety of subject-matter situations to many areas of living.*

In general the pupils applied their knowledge of the principles of art in recognizing true and false statements concerning use of color, line, texture, rhythm, proportion, balance, and emphasis in a variety of subject-matter situations in several areas of living. The pupils identified and solved problems in the judging of two cups of the same pattern, choosing accessories for a child's dress, and in making an arrangement of beauty.

3. *Pupils expressed awareness of the importance of the unit for them now and in the future.*

Evaluations made by pupils at the close of unit, observations of pupil behaviors, written and work assignments completed by pupils during unit provided evidence that pupil learnings in this unit seemed useful to them and that they gained knowledge they felt they could use in the future.

4. *Pupils expressed their enthusiasm for and keen interest in learning experiences included in unit.*

Evaluations made by pupils at the close of unit, observations of pupil behaviors, test results and daily work provided evidence of keen interest and a high degree of enthusiasm throughout the unit.

5. *The teacher of the unit achieved great satisfaction in teaching the unit.*

The development, teaching, and evaluating of this unit provided an exciting and challenging learning experience for the teacher. Pupils' growth shown by test results, work and written assignments, and behaviors of pupils in learning situations, in addition to the enthusiasm displayed by pupils provided satisfaction to the teacher.

6. *A small increase in group mean score was noted on the Watson-Glaser Critical Thinking Appraisal, Form Ym.*

There was a group mean score change of + 2.43.

II. RECOMMENDATIONS

Findings have been interpreted with an awareness of limitations of the study. Recommendations resulting from this study may provide help to teachers in general as they plan for effective pupil learning in problem-solving situations.

1. _Teachers who seek to assist pupils in maximum development of thinking skills needed for successful problem solving should analyze evidence in relation to pupils' problems, interests, and needs carefully._

These problems, interests, and needs may provide major guides as content of courses is developed. Pertinent information about pupils, frequently already available, may be effective when utilized by teachers in planning for and implementing all learning experiences for those pupils.

2. _If more growth toward those pupil behaviors identified in this study is desired_, this _might be achieved through a unit longer than the one in this study or through units in which pupils and teachers had previous experience with teaching-learning situation developed around problem-solving experiences._

Practice in thinking and solving problems is necessary for the development of skill in thinking.

Opportunities to utilize the problem-solving approach in repeated situations in home economics and in other subject matter areas would probably enable high school pupils to show more gain than shown in study in ability to use critical-thinking skills to solve problems effectively. Thinking skills and problem-solving abilities developed as a result of learning experiences may contribute greatly to effectiveness of these pupils as homemakers and as citizens of our country.

3. _If the problem-solving approach to learning has merit, elementary and other high school courses could be planned and taught in this manner. Early experience and more experiences identifying and solving problems might result in increased depth of understanding and make later learnings more meaningful than at present._

In this study a unit in the Home Economics I course was taught through problem-solving experiences. It appears likely that other course offerings in home economics and other subjects could be developed and taught by the problem-solving method identified and implemented in this study.

4. _There appears to be a need for the development of effective means for evaluating the quality of thinking skills and problem-solving abilities attained by pupils as_

a result of learning.

Most tests studied by the investigator were, to a great extent, tests which appeared to measure intelligence or knowledge rather than problem-solving ability. No test was discovered to measure pupils' ability to think critically about art principles as they apply to the various areas of living. Indications of growth in critical-thinking ability evidenced by pupils' test repsonses were evaluated in this study with awareness of certain inadequacies which may have existed in the test instrument.

5. *If home economics teachers would have pupils see interrelationships between and among areas of homemaking, they might provide learning experiences based on competences to be developed by pupils rather than the more traditional subject-matter areas*.

In this study two of the twelve competences developed by Peterson as ultimate objectives for the total secondary home economics program were identified and developed into ultimate objectives for the unit, "Beauty As It Affects Individuals and Families." The same approach might be made using other identified competences. These might serve to show the interrelationships between and among areas of homemaking.

6. _If home economics teachers would have pupils develop skill in applying art principles to all areas of home and family living, they will incorporate many opportunities for pupils to work with materials and ideas throughout their home economics courses._

In this study many opportunities for pupils to work with materials and ideas in various areas of home and family living were incorporated. This may have helped the pupils see the broad application of art principles to all areas of home and family living, and it may have helped pupils understand the meaning of the art principles through application rather than by a memorized rule. Practice is necessary to develop skill in applying art principles. Opportunities to work with materials and ideas in various areas of home and family living in repeated and new situations in home economics classes would probably enable pupils to develop further their skill in applying art principles.

7. _If prospective teachers are to learn about problem solving as a method of teaching, and about competences as a basis for structuring home economics curriculum, they need to have opportunity to gain experience in teaching by this method._

Teachers need to be aware of this method of teaching and this basis for developing a home economics program. Occasions for study about them may be provided in teacher-education classes. Opportunity for observation or to gain experience in the use of the method may arise in student-teaching situations.

8. In-service programs may appropriately be planned by teacher educators to provide teachers with opportunities to learn more about the problem-solving method and competences as a basis for curriculum structure if teachers are to increase awareness and skill in the use of them.

Although teachers may be aware of problem solving and competences as basis for curriculum development, they need to know how to use these approaches in teaching-learning situations planned for pupils.

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APPENDICES

APPENDIX A

PUPIL DATA SHEET

			Previous Art Classes*	Differential Aptitude Tests			(Percentile)
Pupil	Age	Grade in School		Abstract Reasoning	Space Relations	Scholastic Aptitude (Verbal Reasoning + Numerical Reasoning)	Phase of English
A	14	9	H	70	60	35	3
B	14	9		97	65	60	3
C	13	9	H	97	97	65	3
D	14	9		80	40	50	3
E	17	12	G	75	90	85	3
F	14	9	H	65	30	35	3
G	17	12	G	40	75	50	3
H	14	9	G	85	90	90	3
I	14	9	H	25	35	55	4
J	13	9	G	35	20	40	3
K	16	11	G,F	80	70	97	5
L	13	9	G	25	45	50	3
M	14	9		55	30	55	3
N	14	9		45	25	90	4
O	14	9	G	70	45	95	4
P	15	11	G,F	99	65	95	5
Q	14	9	G	85	85	99	4
R	16	11	F	70	80	70	4
S	16	11		40	81	61	4
T	14	9		50	80	65	3
U	14	9		5	35	10	1
V	14	9	G	50	65	75	2
W	14	9	H	76	75	95	4
X	14	9	G	97	90	90	4
Y	14	9	G	55	20	40	3
Z	15	10	H	15	15	15	3
AA	13	9		30	85	55	3
BB	14	9		35	10	40	2
CC	14	9		5	97	75	3
DD	14	9	G	90	97	99	4
EE	14	9		55	50	65	3
FF	15	10	H	35	65	50	3

*G . . . . grade school art
H . . . . enrolled in high school art at present time
F . . . . fine arts in high school

APPENDIX B

PUPIL REFERENCE LIST FOR UNIT

"BEAUTY AS IT AFFECTS INDIVIDUALS AND FAMILIES"

BOOKS AVAILABLE IN HOME ECONOMICS ROOM

Aronson, Joseph. Book of Furniture and Decoration.

Baxter, Laura and Alpha Latzke. Today's Clothing.

Berrall, Julia S. Flowers and Table Settings.

Better Homes and Gardens. Flower Arranging.

Carson, Byrta. How You Look and Dress.

Craig, Hazel Thompson and Ola Day Rush. Homes with Character.

Downer, Marion. Discovering Design.

Faulkner, Ray, Edwin Ziegfeld, and Gerald Hill. Art Today.

Goldstein, Harriet and Vetta Goldstein. Art in Everyday Life.

Heyne Jr., Carl J. and others. Art for Young America.

Hicks, Edna. Singer Home Decorating Sewing Book.

Holme, Bryan. Pictures To Live With.

Kainz, Luise C. and Olive L. Riley. Exploring Art.

Lewis, Dora S., Mabel Goode Bowers, and Marietta Kettunen. Clothing Construction and Wardrobe Planning.

Lewis, Dora S., Mabel Goode Bowers, and Marietta Kettunen. Family Meals and Hospitality.

Obst, Frances. Art and Design in Home Living.

Oerke, Bess V. Mealtime.

Pollard, L. Belle. Experiences with Clothing.

Pollard, L. Belle. Experience with Foods.

Pratt, Richard. Ladies' Home Journal Book of Landscaping and Outdoor Living.

Raines, Margaret. Managing Livingtime.

Ryan, Mildred Graves. Dress Smartly.

Seventeen, Editors of. Seventeen Book of Decorating.

Schniller, James A. Art Search and Self-Discovery.

Speiser, Werner. Art of China.

Trilling, Mabel B. and Florence Williams. Art in Home and Clothing.

Trilling, Mabel B. and Florence Williams. Art in Home and Dress.

Trilling, Mabel B. and Florence Williams. Design Your Home For Living.

Wallace, Inez and Bernice McCullar. Building Your Home Life.

Warner, Esther. Art: An Everyday Experience.

Whiton, Sherrill. Elements of Interior Design and Decoration.

PAMPHLETS, BULLETINS AND MIMEOGRAPHED MATERIALS AVAILABLE IN HOME ECONOMICS ROOM

Bobbie Brooks, Inc. Wardrobe Magic.

Johnson, Naomi. Becoming Line for Figure Types.

Johnson, Naomi. Becoming Neckline Styles for the Individual.

Johnson, Naomi. Line, Design, Texture, and the Individual.

Johnson, Naomi. Lines in Accessories for these Figure Types.

Johnson, Naomi. Lines Use.

Johnson, Naomi. Requirements of Good Design.

Johnson, Naomi. Select Your Most Becoming Lines in Dress.

Kansas State University, Extension Service. Choosing Accessories for the Home.

Kansas State University, Extension Service. Color in Your Home.

Kansas State University, Extension Service. Cutting and Selecting Design in Prints.

Kansas State University, Extension Service. Function Related to Structural Design and Fabric.

Kansas State University, Extension Service. Line.

Kansas State University, Extension Service. Principles of Design.

McCalls Patterns. Tips for the 'Sew' Set, No. 1-13.

Rit Products Division of the Best Foods, Inc. Acquiring An "Eye" for Color.

Rit Products Division of the Best Foods, Inc. This Is the House That Color Built.

Seashore, Robert H. and A. C. Van Dusen. How to Solve Your Problems.

Starkey, Winoma. Art and You.

Starkey, Winoma. Color Recipes.

Starkey, Winoma. Design.

Starkey, Winoma. More About Color

Wennerstrom, Lorene. How To Design Your Own Clothes and Create Patterns.

PERIODICAL MATERIALS AVAILABLE IN HOME ECONOMICS ROOM

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FILMS AND FILMSTRIPS

Association Films, Inc. Color for Joy.

Audio-Visual Aids Library. The Beauty Around Us.

Charles A. Bennett Company, Inc. Art is Everywhere.

E. I. Du Pont de Nemours and Company. Step Out in Color.

J. C. Penny Company, Inc. Color and You.

J. C. Penny Company, Inc. Color As You Wear It.

J. C. Penny Company, Inc. Line in Your Wardrobe.

J. C. Penny Company, Inc. Take a Look at Color.

McGraw Hill Book Company Inc. Color in Your Clothes

McGraw Hill Book Company, Inc. The Right Clothes For You.

Modern Talking Picture Service Inc. Color Magic.

Modern Talking Picture Service Inc. The Fabric Story.

National Paint, Varnish, & Lacquer Assn. Color Newsreel.

University of Kansas Extension. Design--Line.

University of Kansas Extension. Design--Shape.

University of Kansas Extension. Seven Guideposts to Good Design.

Meredith Publishing Company. Color, Your Key to Good Decorating.

National Cotton Council. Tomorrow's Textures.

APPENDIX C

THE SIX STEPS TO PROBLEM SOLVING[1]

(Adapted from How to Solve Your Problems
by Seashore and Van Dusen)

There is no magic way of solving problems. It can't be done with mirrors, or by pulling a solution out of a hat. But there is a formula that's the next best thing to magic, that you can learn to use in meeting your particularly pressing difficulties more successfully. Once you master this six step process, you'll be able to do a better job of solving your most important problems. Here are the steps in the problem solving process. These are the steps you can follow in solving your problems.

1. State your problem clearly.

   What is it you want to do or have that you don't now do or have?
   What is it you need? It is sometimes very hard to decide exactly what your problem is.

2. List the obstacles that stand in your way.

   What difficulties stand in your way now? What is it that keeps you from knowing what to do?

3. List the advantages you have to work with.

   What things do you have or what things do you know how to do that can help you find a solution to this problem?

4. What are the possible solutions for this problem?

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[1] Bernadine Helen Peterson, "Experimental Use of the Problem Solving Methods in Teaching a Beginning Home Economics Class," unpublished Doctor's Dissertation, p. 225 (Adapted from Robert H. Seashore and A. C. Van Dusen. How to Solve your Problems,) Science Research Associates, pp. 14-20.

List the things that might be done to solve it. What are all the possible ways you can see that this problem might be solved in a reasonable way.

5. Try to figure out what the results of each of these solutions would be.

   What would happen if I solved this problem in this way? Think of a result, or several results, for each possible solution suggested in step 4. Think of reasonable possibilities.

6. What is the best solution or what are the best solutions for me?

   Even if your problem is the same as someone else's, you may not solve it in the same way. Remember, we decided last week that there are many good ways to solve a problem. What you need to do is to select the best solution for yourself taking into consideration all the conditions in your problem.

Then, of course, the next thing is to go about putting your plan into operation. See whether you can work to solve your problem according to your plan of action. How good a "problem solver" are you?

If your plan doesn't seem to work, try to decide why it didn't work. Make changes in your plan as needed. Keep working on it. You will be more successful if you keep trying. Most problems can be solved!!!!

APPENDIX D

BEAUTY AS IT AFFECTS INDIVIDUALS AND FAMILIES UNIT TEST

PART ONE

I. These pictures* represent two ways of serving food. Study the pictures carefully, noting details as well as the general appearance. The statements below may apply to one or both of the pictures or to neither picture. Circle the letter that corresponds to each picture for which you believe the statement is true. When the statement does not apply to either of the pictures, place no marks on the test.

FOOD

A B 1. The use of complementary colors is illustrated in the colors of the beverage and tablecloth.

A B 2. A warm color is intensified because it is placed near a contrasting color.

A B 3. Low intensity colors predominate in the picture.

A B 4. Rhythm is produced through repetition of shapes in the food and dishes.

A B 5. Different but compatible textural relationships are shown in food, tablecloth, and dishes.

A B 6. A restful effect is obtained by formal balance in grouping the different shapes and colors of food on the dishes.

A B 7. The dishes used are in character with each other and with the tablecloth.

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* See pictures following test.

II. These pictures* represent two ways of decorating the same room. Study the pictures carefully, noting details as well as the general appearance. The statements below may apply to one or both of the pictures or to neither one. Circle the letter that corresponds to each picture for which you believe the statement is true. When the statement does not apply to either of the pictures, place no mark on the test. The statements pertain only to the areas of the room which are shown in the pictures.

ROOM

A B 1. Texture predominates and creates a feeling of warmth.

A B 2. Smooth surface textures create an effect of coolness.

A B 3. Arrangement of objects on the table illustrates formal balance.

A B 4. Pictures on the wall give height to room.

A B 5. The treatment of the windows gives height to the room.

A B 6. The use of a light value in the wall color makes the room appear smaller.

---

* See pictures following test.

III. A. This is a picture* of a house exterior. Study the picture carefully, noting details as well as general appearance. Then read the statements below. If you believe the statement about the house is true, circle the letter T; if you believe that it is false, circle the F.

T F 1. The five plantings directly in front of the shuttered windows illustrate informal balance.

T F 2. The high intensity red orange shutters and wrought iron grilles add the needed feeling of height to the house.

T F 3. The door is emphasized by the use of the color blue-green, the complement of the red-orange color used for the shutters and wrought iron grilles.

T F 4. A 1:2 relationship of the window panes in the large window would show a more pleasing proportion than the 2:3 relationship that is illustrated in the picture.

B. Identify one other way that proportion was used in a pleasing relationship in this house. Describe how it was achieved.

---

* See pictures following test.

IV. These five folders contain articles or pictures* that represent three different color harmonies. Analyze each by naming the color harmony. Identify the colors that tell you the color harmony of each.

FOLDER	COLOR HARMONY	Colors
A		
B		
C		
D		
E		

V. Using the learnings from our study of the principles of art and elements of design discuss the beauty you see in any one of the objects placed on your table. Use vocabulary words that we have studied.

The qualities that make the ________ beautiful are

---

* See pictures following test.

PART TWO

VI. A. These two cups are Haviland china. Judge the cups by the standards set up in the table below. Rate excellent, good, fair or poor and give reasons for your choice.

JUDGING CUP A

Standards for Judging Object	Rating I Gave	Reasons for My Decision
Simplicity		
Beauty (List art principles you took into consideration in rating the cups.)		
Suitability		

JUDGING CUP B

Standards for Judging Object	Rating I Gave	Reasons for My Decision
Simplicity		
Beauty (List art principles you took into consideration in rating the cups.)		
Suitability		

VI. (continued)

B. Write a comparison of the cups by using the ratings you gave each standard. (Use the blank sheet of paper for this comparison.)

C. Would you expect one cup to be more expensive than the other? If so, state which one and tell why. (Use the blank sheet of paper for this answer.)

VII. Mrs. Brown was called out of town on account of her mother's illness. Since school was in session, she left fourteen-year old Judy and six-year old Mary home with their father. Mary was invited to her friend's Saturday afternoon birthday party. Mary knew what dress she was to wear with it. They had threo groups of accessories from which to choose.

A. What would the effect be if group A were chosen?

B. What would the effect be if group B were chosen?

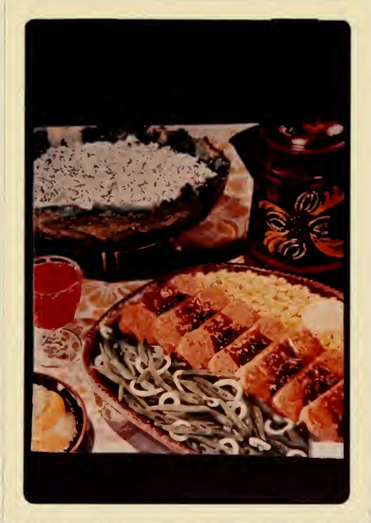
C. What would the effect be if group C were chosen?

D. I would choose group ________ because

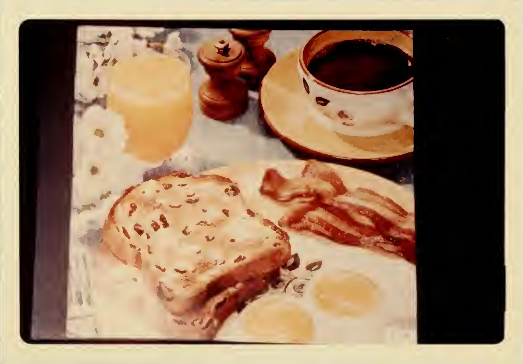
VIII. PROBLEM TO SOLVE: How can I make an arrangement of beauty for our table?

DIRECTIONS: Use three to five of these objects and/or fabrics and arrange them as you might on a table in a home. Apply your knowledge of the elements of design and principles of art in making the arrangements.

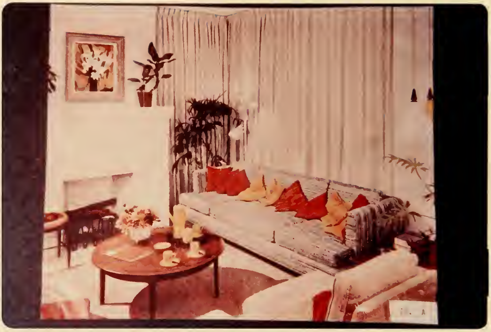
PICTURES FOR THE UNIT TEST



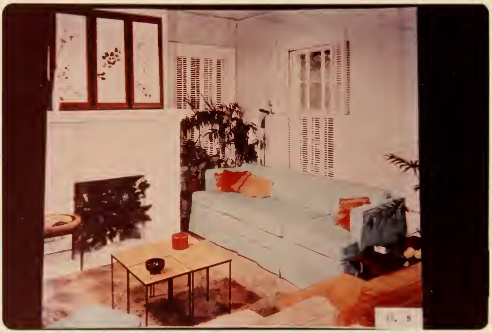
I. A



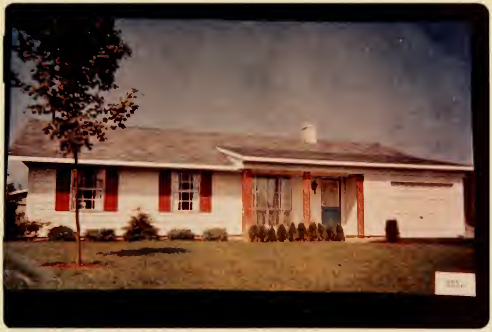
I. B



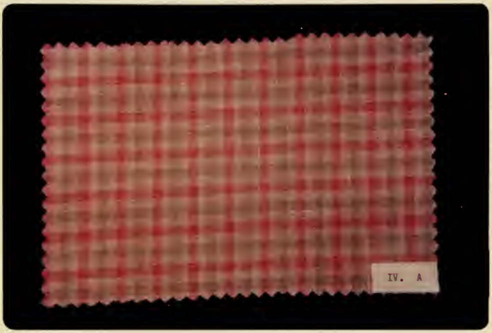
II. A



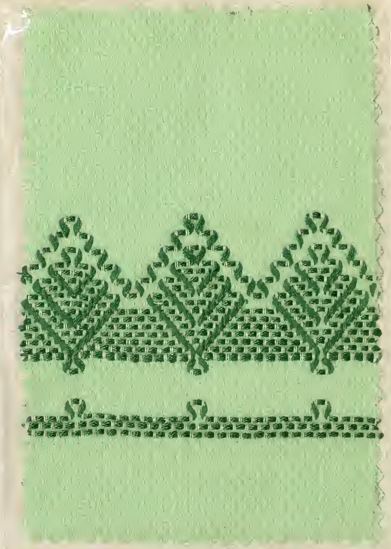
II. B



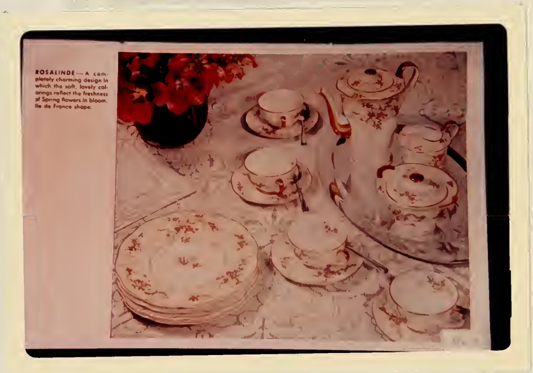
III



IV. A



IV. B



ROSALINDE — A completely charming design in which the soft, lovely colorings reflect the freshness of Spring flowers in bloom. Ile de France shape.

IV. C

IV. D

IV. E

APPENDIX E

RAW SCORES ON UNIT TEST

Pupil	I (14)*	II (12)	III (12)	IV (20)	V (18)	VI (56)	VII (16)	VIII (20)	Total (168)	Rank in Group (N=32)
A	8	10	8	17	14	47	14	18	136	20
B	8	8	6	15	18	32	14	19	120	30
C	8	10	11	19	14	41	16	18	137	18
D	9	12	10	16	18	52	16	16	149	10
E	10	11	2	20	10	44	16	18	131	24
F	7	11	12	14	12	38	16	18	128	28
G	10	10	12	17	13	53	16	18	149	12
H	7	9	5	15	11	50	15	19	131	24
I	9	11	12	13	16	39	16	18	134	21
J	8	10	8	19	12	50	15	20	142	15
K	12	12	12	20	17	56	16	18	163	1
L	9	11	10	14	10	46	14	20	134	21
M	8	10	5	13	17	50	16	18	137	19
N	9	11	10	17	18	54	16	20	155	5
O	11	12	10	20	13	56	16	20	158	4
P	9	12	12	20	18	56	16	20	163	1
Q	11	10	12	19	12	56	16	18	154	6
R	9	12	10	20	13	44	16	18	142	15
S	12	12	10	20	17	56	16	20	163	1
T	8	11	10	20	12	56	10	16	143	14
U	8	9	12	10	12	34	15	18	118	31
V	9	8	10	16	7	45	15	20	130	27
W	9	11	10	18	18	56	11	18	151	7
X	10	12	12	20	9	56	13	19	151	7

RAW SCORES ON UNIT TEST (continued)

Y	9	12	12	19	15	40	15	20	142	15
Z	6	11	8	17	14	44	16	18	134	21
AA	7	9	12	12	15	41	16	18	130	26
BB	7	11	12	20	15	50	16	19	150	9
CC	8	10	12	12	11	47	6	19	120	29
DD	7	10	10	20	12	56	14	20	148	11
EE	6	11	10	19	9	33	8	20	116	32
FF	9	12	10	18	15	51	12	18	145	13
Mean	8.7	10.7	9.9	17	13.7	47.8	14.5	18.7	141	

*Numbers in parentheses indicate possible scores.

APPENDIX F

CHECK LIST FOR RATING SCALE

	Quality of Discussion			Affective Behaviors		
	Use of Reference	Contribution Questions	Aid to Class	Receiving	Responding	Valuing
Pupil A						
B						
C						
D						
E						
F						
G						
H						
I						
J						
K						
L						
M						
N						

APPENDIX G

PUPIL'S EVALUATION OF UNIT

Answer the following stating just how you feel about the unit, "Beauty As It Affects Individuals and Families."

What is your attitude toward the freedom given in this unit?

In what way has the unit been interesting or uninteresting?

Do you think you have learned very much that is of help to you now or in the future? Explain how.

APPENDIX H

SUMMARY OF RAW SCORES AND PERCENTILE RANKS ON "WATSON-GLASER CRITICAL THINKING APPRAISAL, FORM YM"
FOR HOME ECONOMICS I GIRLS AT SHAWNEE HEIGHTS HIGH SCHOOL, FALL, 1964

Pupil	Inference	Assumptions	Deduction	Interpretation	Evaluation of Arguments	Total Score	Percentile**	Inference	Assumptions	Deduction	Interpretation	Evaluation of Arguments	Total Score	Percentile**	Score Change
	I	II	III	IV	V			I	II	III	IV	V			
	(20)*	(16)	(25)	(24)	(15)	100	%	(20)*	(16)	(25)	(24)	(15)	100	%	
	Number of Correct answers							Number of Correct Answers							
A	8	5	16	14	9	52	32	10	11	13	10	11	55	44	+3
B	14	11	12	14	9	60	64	11	12	15	16	10	65	76	+4
C	9	7	19	11	10	56	48	15	10	16	12	3	46	16	-10
D	5	12	17	15	9	58	56	8	11	18	14	10	61	66	+3
E	14	9	18	15	11	67	58	15	14	18	15	10	72	74	+5
F	7	10	11	14	10	52	32	6	11	15	17	7	56	48	+4
G	14	14	19	13	8	68	60	8	15	20	16	6	65	50	-3
H	12	8	24	18	11	73	91	10	16	17	15	8	66	50	-7
I	8	5	15	12	7	47	18	10	13	17	13	11	64	76	+17
J	6	3	19	14	7	49	24	9	7	16	14	5	51	28	+2
K	12	13	20	19	11	75	84	14	12	23	18	12	79	91	+4
L	11	12	15	18	7	63	72	8	10	11	17	5	51	28	-12
M	8	7	14	10	10	49	24	10	11	18	13	10	62	70	+13
N	14	13	18	14	9	68	84	12	11	18	15	12	68	84	
O	15	11	19	20	9	74	93	13	13	18	21	9	74	93	
P	12	11	20	20	12	75	84	12	13	20	22	12	79	91	+4

Q	10	14	19	19	11	73	91	13	16	21	20	12	82	99	+9
R	11	11	13	19	12	66	58	10	10	15	16	11	62	44	-4
S	12	13	17	21	11	74	82	13	14	15	22	8	72	78	-2
T	11	13	14	15	9	61	66	13	13	19	15	11	71	89	+10
U	7	12	8	14	6	47	18	13	11	13	23	6	66	80	+19
V	10	8	16	10	10	54	40	11	10	20	8	9	58	56	+4
W	11	12	18	18	12	71	89	9	13	19	15	11	67	82	-4
X	11	11	16	16	11	65	78	10	13	14	14	12	63	72	-2
Y	6	8	13	14	9	50	26	11	11	17	11	11	61	66	+11
Z	11	10	19	19	10	69	78	14	10	19	17	10	70	80	+1
AA	5	13	17	17	8	60	64	12	14	14	15	5	60	64	
BB	9	10	17	10	11	57	52	11	11	16	14	5	57	62	
CC	9	7	17	19	8	60	64	9	10	12	17	11	59	60	-1
DD	14	11	17	19	10	71	89	15	12	17	23	11	78	97	+7
EE	11	10	16	13	8	58	56	9	11	13	15	3	53	48	-2
FF	10	14	8	10	13	55	30	12	12	13	13	10	60	46	+5
Mean	10.1	10.3	16.3	15.4	9.7	61.8		11.1	11.9	16.6	15.8	9.1	64.2		+78

*Numbers in parentheses indicate possible scores

**Percentile based on year in school

LEARNING ART PRINCIPLES THROUGH PROBLEM SOLVING IN A HOME ECONOMICS I CLASS

by

SARAH ANN SHIPMAN

B. S., Kansas State University, 1939

AN ABSTRACT OF A MASTER'S THESIS

submitted in partial fulfillment of the

requirements for the degree

MASTER OF SCIENCE

School of Education

KANSAS STATE UNIVERSITY
Manhattan, Kansas

1965

The art of critical thinking is considered to be of vital importance to human existence. Teaching-learning situations incorporating a problem-solving approach to help the pupils develop concepts and generalizations may assist in cultivating in pupils the ability to think critically.

The importance of competence in using art principles in all aspects of personal and family living has been recognized by home economics groups. Emphasis on identifying and solving problems and relating art principles in a variety of subject-matter situations to many areas of living may improve pupils' abilities to think and solve their problems now and in the future.

The purposes of this study were (1) to develop a unit based on art principles using the problem-solving approach; and (2) to determine the learning that occurred as a result of teaching this unit to a group of Home Economics I pupils.

A review was made of literature concerning learning through problem-solving and art as a part of the home economics program. Two of the twelve competences Peterson developed as ultimate objectives for the total secondary home economics program were developed into ultimate objectives for the unit in this study. They were "Applying critical thinking skills to problems of personal and family living," and "Learning to appreciate beauty and its contributions to daily living."

Behaviors were identified that would lead to development of, appreciation for, and ability to use art principles in daily living. These behaviors were structured into problem situations and a unit "Beauty As It Affects Individuals and Family," was developed around these problem situations for a Home Economics I class.

Generalizations to be recognized by pupils and suggested pupil-learning experiences were identified for problems in the unit. Illustrative desired behaviors and situations for evaluation were recognized for each phase of the unit.

A unit test developed by the investigator was administered after the unit was taught to determine the nature and amount of learning in identifying and solving problems and in relating art principles from a variety of subject-matter situations to many areas of living.

The _Watson-Glaser Critical Thinking Appraisal, Form Ym_ was administered before and after the unit to measure growth in certain aspects of critical-thinking ability of pupils. Other means of evaluation included the investigator's analysis of written and work assignments completed by pupils during unit, observation of pupils in the learning situation, and evaluations made by pupils at the close of the unit.

There was evidence of pupil growth toward objectives of the unit. Test results indicated that learning had occurred in identifying and solving problems and in relating art principles from a variety of subject-matter situations to many areas of living. A small increase in group mean score was noted on the _Watson-Glaser Critical Thinking Appraisal_, _Form Ym_.

Home economics teachers who incorporate opportunities for pupils to develop skill in applying art principles in all areas of home and family living; who utilize the problem-solving approach in teaching-learning situations; and who use competences as a basis for structuring the home economics curriculum, may contribute to the effectiveness of pupils as homemakers and as citizens of our country.